

Service Manual

Electronic Organ

SX-GN5/GN5K

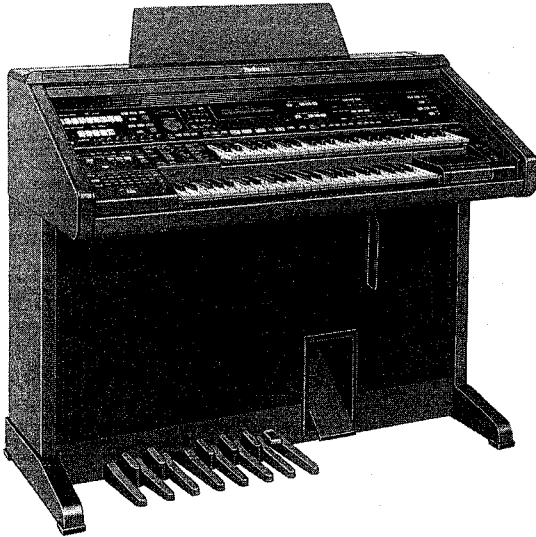


Photo: SX-GN5K

(N), (M), (MC), (XM), (EN), (EI), (EH), (EB), (EF),
(EZ), (EW), (EP), (EK), (XL), (XR), (XS), (XD), (X)

AREAS

(N): Japan	(EW): Switzerland
(M): U.S.A.	(EP): Spain
(MC): Canada	(EK): the United Kingdom
(XM): Mexico	(XL): New Zealand
(EN): Norway, Sweden, Denmark, Finland	(XR): Australia
(EI): Italy	(XS): Malaysia, Singapore, South Africa
(EH): Holland	(XD): Saudi Arabia
(EB): Belgium	(X): the Middle East, Indonesia, Hong Kong, the Philippines, Taiwan, Thailand
(EF): France, Austria	
(EZ): Germany	

Information

- There are two identical models available as SX-GN5 and SX-GN5K and all specifications are the same in both models except cabinet parts and panel parts. Identify an unit with model number which available on the name plate on the rear board and perform proper service.
- The pictures and illustrations in this manual are taken from SX-GN5K.

Specifications

KEYBOARD		UPPER KEYBOARD: 49 KEYS, LOWER KEYBOARD: 49 KEYS PEDAL KEYBOARD: 13 KEYS, FULL BASS PEDAL: 1 KEY
PRESET SOUND	ORCHESTRAL CONDUCTOR (UPPER/LOWER)	VOLUME, TAB & ORGAN, POLY, SPECIAL, SOLO
	SOUND SELECT (UPPER/LOWER)	PIANO, ELECTRIC PIANO, HARPSICHORD, MALLET, GUITAR, ELECTRIC GUITAR, STRINGS, VOCAL, BRASS, TRUMPET, SAX, REED, FLUTE, VIOLIN, ACCORDION, EXTEND
	TAB	UPPER: FLUTE 16', 8', 5-1/3', 4', 2-2/3', 2', 1' PERC 4', 2-2/3', LOWER: FLUTE 8', 4', 2-2/3', 2', 1'
	ORGAN	UPPER: 9 PRESETS, LOWER: 5 PRESETS
	BASS	ORGAN, ORCHESTRA, ACOUSTIC, ELECTRIC, CHOPPER, SYNTH 1, 2, PIPE ORGAN
SOUND EDIT	PARAMETERS	TONE ASSIGN MODE (NORMAL, DUAL, DUET, TRIO), TONE SELECT, VOLUME (LEVEL, KEY BALANCE), PITCH (KEYSHIFT, DETUNE), REPEAT (SPEED), ENVELOPE (ATTACK & DECAY, RELEASE), VIBRATO (DEPTH, SPEED, DELAY), TREMOLO (SPEED), AUTOBEND & TRILL (PATTERN, DEPTH, SPEED), PITCH RELEASE (DEPTH, TIME), GLIDE (ON/OFF), INITIAL TOUCH (VOLUME, AUTOBEND & TRILL), AFTER TOUCH (VOLUME, MODULATION), SUSTAIN (ON/OFF), SOUND NAME
	MEMORY	UPPER 8, LOWER 8, BASS 8
EFFECT	CELESTE	SOUND SELECT, TAB & ORGAN (UPPER & LOWER)
	REVERB	SOUND SELECT, TAB & ORGAN (UPPER & LOWER), DEPTH
	TOUCH	SOUND SELECT (UPPER & LOWER)
	SUSTAIN	SOUND SELECT, TAB & ORGAN (UPPER & LOWER), BASS, LEVEL
	TREMOLO	TAB & ORGAN (UPPER & LOWER), SLOW/FAST
TRANPOSE		G-C-F#
TECHNI-CHORD		PROGRAM (CLOSE, OPEN 1, 2)
RHYTHM	PATTERN	MARCH, POLKA, COUNTRY, WALTZ, TANGO, CHA-CHA, RHUMBA, FAST LATIN, BIG BAND, JAZZ COMBO, MODERN JAZZ, DIXIE, JAZZ WALTZ, SHUFFLE, SAMBA, BOSSANOVA, 8 BEAT 1, 2, HARD ROCK, ROCK'N' ROLL, ROCK BALLAD, SAMBA ROCK, SALSA, REGGAE, 16 BEAT 1, 2, 16 BEAT BALLAD, JAZZ ROCK, FUNK, SWING ROCK, DISCO 1, 2, VARIATION
	CONTROL	START/STOP, SYNCHRO & BREAK, FILL IN 1, 2, INTORO & ENDING, TEMPO
	KEYBOARD PERCUSSION	39 KEYS
	AUTO PLAY CHORD	FINGERED 1, 2, MEMORY

Technics

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

Matsushita Services Company
Division of Matsushita Electric
Corporation of America
50 Meadowland Parkway,
Secaucus, New Jersey 07094

Panasonic Sales Company,
Division of Matsushita Electric
of Puerto Rico, Inc.
San Gabriel Industrial Park
65th Infantry Ave. Km. 9.5
Carolina, P.R. 00630

ARRANGER	ACCOMP 1, ACCOMP 2 & 3, DRUMS
ONE TOUCH PLAY	○ (ONE TOUCH PLAY, MUSIC STYLE)
VOICE SETTING COMPUTER	SET, 1-8
COMPOSER	5 TRACKS (ACCOMP 1, 2, 3, BASS, DRUMS), MEMORY...8 INPUT MODE (REAL TIME, STEP) EDITING FUNCTIONS (COPY, RECORDING CHORD SELECT)
SEQUENCER	TRACK
	8 TRACKS PART: UPPER, LOWER, BASS, CHORD, UPPER POLY, LOWER POLY, DRUMS, CONTROL
SEQUENCER	STORAGE CAPACITY: APPROX. 6,000 NOTES INPUT MODE: REAL TIME, STEP EDITING FUNCTIONS: PUNCH IN/OUT, TRACK ASSIGN, SONG ALL CLEAR, TRACK CLEAR, TRACK MERGE, MEASURE DELETE, MEASURE ERASE, MEASURE INSERT, MEASURE COPY, VELOCITY CHANGE, QUANTIZE, DEMONSTRATION TUNE
MUSICAL DIRECTOR	LIQUID CRYSTAL DISPLAY: 40 LETTERS × 2 LINES, CONTRAST
CONTROL	PAGE, TEMPO/PROGRAM DIAL, BALANCE, VOLUME
MIDI	PART (12 PARTS), BASIC CHANNEL (1~16), MIDI INPUT SELECT (CONDUCTOR/DIRECT, APC/DIRECT), MIDI OUTPUT SELECT (KEYBOARD/CONDUCTOR, TECHNI-CHORD ON/OFF, APC/CHORD)
	MIDI FUNCTION SELECT: <COMMON> INITIAL, NOTE ONLY, TRANPOSE OUT, PROGRAM CHANGE MODE, SONG SELECT, REAL TIME COMMAND, MIDI CLOCK, MIDI LOAD

MIDI	<PART> OCTAVE SHIFT, PROGRAM CHANGE, VSC PROGRAM CHANGE, SUSTAIN, AFTER TOUCH, PITCH BEND, MODULATION, VOLUME, TREMOLO, EFFECT 1, EFFECT 2, EXPRESSION, INTRO, MIDI APC, DRUMS TYPE, LOCAL CONTROL, MIDI OUT, VSC PROGRAM CHANGE, VSC LOCAL CONTROL
EXTERNAL MEMORY	DIGITAL DISK RECORDER (Optional for GN5K)
TERMINALS	MIDI
	IN, OUT, THRU
OTHERS	OTHERS
	LINE OUT ...output level 300mV, 600Ω 2CH output (L, R/R+L) AUX IN input level 150mV, 10KΩ L, R/R+L terminals PHONES use headphones with 16Ω impedance
OTHERS	POWER SWITCH, MAIN VOLUME, EXPRESSION PEDAL, FOOT SWITCH (RIGHT/LEFT), KNEE LEVER
OUTPUT	150W
SPEAKERS	30cm × 1, 20cm × 1, TWEETER × 2, 13cm × 6cm × 2 (MONITOR)
POWER REQUIREMENT	440W, 360VA (CANADA) AC 220V 50Hz/60Hz EUROPE (EXCEPT FOR ENGLAND) AC 120V 60Hz NORTH AMERICA AC 120/220/240V 50Hz/60Hz OTHERS
DIMENSIONS (W × H × D)	GN5: 122.3cm × 121.4cm × 60.1cm (48-5/32" × 47-25/32" × 23-21/32") GN5K: 122.3cm × 117.5cm × 60.1cm (48-5/32" × 46-1/4" × 23-21/32")
NET WEIGHT	GN5: 87Kg (191.8lbs) GN5K: 87Kg (191.8lbs)

• Specifications are subject to change without notice for further improvement.

CONTENTS

PART I (INTRODUCTION)

HOW TO ASSEMBLE THE ORGAN.....	I-2
SAFETY PRECAUTION	I-3
INITIAL SETTING	I-3
ARRANGEMENT OF CONTROL PANEL.....	I-4
BASIC FUNCTIONS.....	I-4
TERMINALS	I-7
PARTS LOCATION	I-8
KEYBOARD RANGES	I-9
DISASSEMBLY INSTRUCTIONS.....	I-10
MEASUREMENTS AND ADJUSTMENTS.....	I-13
HOW TO INSTALL THE DIGITAL DISK RECORDER	I-14
PRECAUTION BEFORE SERVICING	I-15
SYMPTOMS WHICH APPEAR TO BE SIGNS OF TROUBLE	I-16
ERROR DISPLAY	I-18
MIDI IMPLEMENTATION CHART	I-19

PART II (SCHEMATIC DIAGRAM)

WIRING CONNECTION DIAGRAM.....	II-1
BLOCK DIAGRAM	II-3
MAIN MAIN CIRCUIT BOARD	II-7
MAIN MAIN CIRCUIT DIAGRAM.....	II-13
MAIN CIRCUIT SOUND GENERATORS	II-17
JACK JACK CIRCUIT DIAGRAM & CIRCUIT BOARD.....	II-21
MVOL MAIN VOLUME CIRCUIT	II-21
FDCN FD CONNECTOR CIRCUIT.....	II-22
DSG DIGITAL SOUND GENERATOR CIRCUIT DIAGRAM & CIRCUIT BOARD	II-23
MKB MANUAL KEYBOARD CIRCUIT DIAGRAM & CIRCUIT BOARD	II-25
EJ II EFFECT, MIXING & JACK II CIRCUIT BOARD	II-28
EJ II EFFECT, MIXING & JACK II CIRCUIT DIAGRAM	II-31
DRV DIGITAL REVERB CIRCUIT DIAGRAM.....	II-35

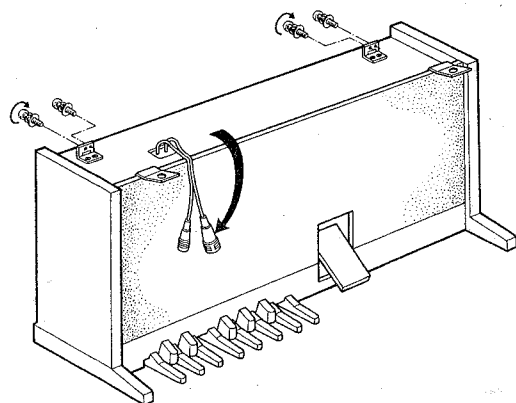
DRV DIGITAL REVERB CIRCUIT DIAGRAM	II-35
DRV DIGITAL REVERB CIRCUIT BOARD	II-37
PKB PEDAL KEYBOARD CIRCUIT DIAGRAM	II-39
PKB PEDAL KEYBOARD CIRCUIT BOARD	II-39
EXP EXPRESSION CIRCUIT	II-41
ACP PSS PSM PA CN AC POWER SUPPLY, SUB POWER SUPPLY, MAIN POWER SUPPLY, POWER AMPLIFIER & CONNECTOR CIRCUIT DIAGRAM	II-42
ACP PSS PSM AC POWER SUPPLY, SUB POWER SUPPLY, MAIN POWER SUPPLY CIRCUIT BOARD	II-45
PA POWER AMPLIFIER CIRCUIT BOARD	II-47
CN CONNECTOR BOARD	II-47
FDC FD CONTROL CIRCUIT	II-48
CPL ESW UPPER CONTROL PANEL LEFT, ENCODER SWITCH CIRCUIT BOARD	II-49
CPL ESW UPPER CONTROL PANEL LEFT, ENCODER SWITCH CIRCUIT DIAGRAM.....	II-51
CPSL LOWER CONTROL PANEL LEFT CIRCUIT BOARD	II-53
CPSL LOWER CONTROL PANEL LEFT CIRCUIT DIAGRAM.....	II-55
CPC UPPER CONTROL PANEL CENTER CIRCUIT BOARD.....	II-57
CPC UPPER CONTROL PANEL CENTER CIRCUIT DIAGRAM	II-59
CPR UPPER CONTROL PANEL RIGHT CIRCUIT BOARD	II-61
CPR UPPER CONTROL PANEL RIGHT CIRCUIT DIAGRAM.....	II-63

PART III (REPLACEMENT PARTS LIST)

REPLACEMENT PARTS LIST (P.C.B. and Wiring Parts)	III-1
REPLACEMENT PARTS LIST (Cabinet and Chassis Parts).....	III-15
EXPLODED VIEWS OF CABINET	III-19
PACKING	III-24

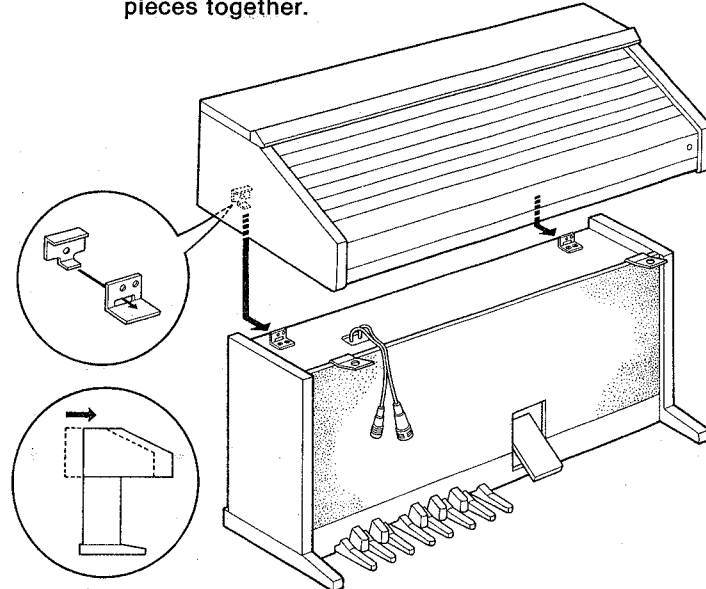
HOW TO ASSEMBLE THE ORGAN

- 1** On the lower stand part, remove the four bolts from the metal joints. Lay the cords to the front of the stand.



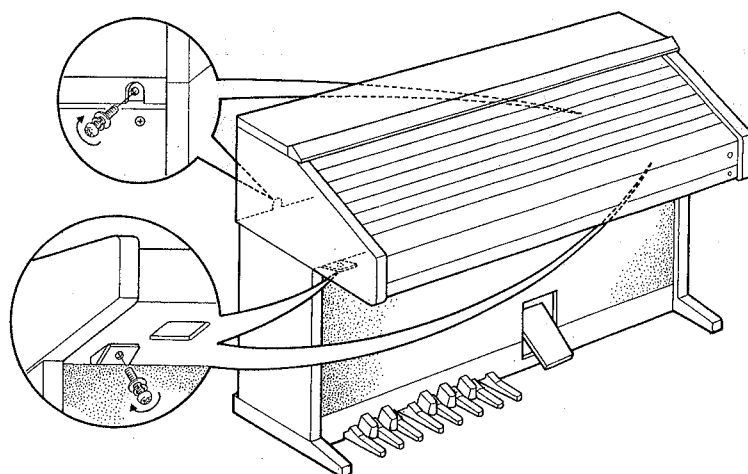
[Fig. 1]

- 2** Place the upper organ part on the lower stand part, making sure to fit the metal pieces together.



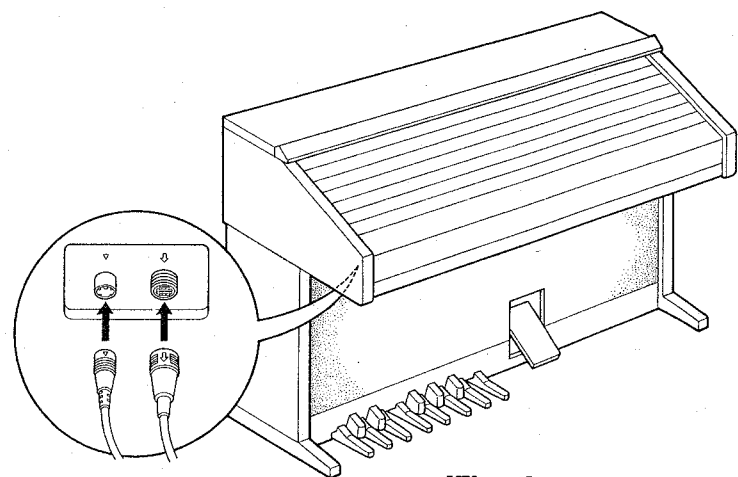
[Fig. 2]

- 3** Using the four bolts removed in step 1, secure the upper organ part to the lower organ part as shown in the figure.



[Fig. 3]

- 4** Connect the two cords from the lower stand part to the respective terminals on the underside of the upper organ part. Unlock the cover with the accessory key.



[Fig. 4]

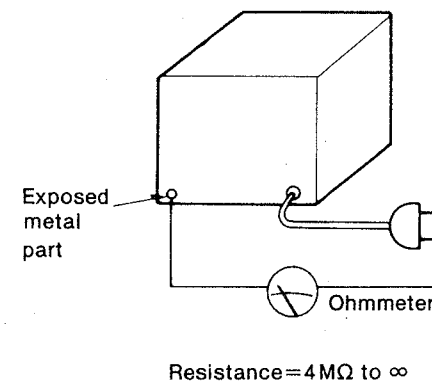
SAFETY PRECAUTION (This "safety precaution" is applied only in U.S.A.)

• Safety Precaution

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

• Insulation Resistance Test

1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screw heads, connectors, control shafts, handle brackets, etc.. Measurements should range from 4MΩ to infinity to all exposed parts.



INITIAL SETTING

- 1** Initial setting function will be used to return to the Original Factory setting mode, reset the customer setting and irregular operations with following methodes.
1. Turn the POWER switch to off.
 2. Then, Turn on the POWER switch while pressing 16 BEAT 1, 16 BEAT 2, and 16 BEAT BALLAD buttons at the same time.

NOTE:

All stored data in the SEQUENCER, COMPOSER AND OTHER will be initialized with this operation.

- 2** Initial setting function also be able to reset limited function of the stored data or all data as same purpose as section 1 above. (ALL, COMPOSER, SOUND MEM, or SEQUENCER is selectable.)
1. Set the MUSICAL DIRECTOR to MEMORY & CONTROL mode.
 2. Change the MUSICAL DIRECTOR mode to INITIAL SETTING mode with PAGE button to call 2nd PAGE.

[MEMORY & CONTROL MODE] PAGE 2

2 : INITIAL SETTING
ALL [SET]

① ② ③ ④

3. The functions to be initialized are selected by the ② buttons.

ALL:

Initializes all functions such as the status of sounds and effects, VOICE SETTING COMPUTER, SOUND SELECT storable memories, COMPOSER and SEQUENCER.

COMPOSER:

Initializes the **COMPOSER** memories and sets them to the factory presets.

SOUND MEM.:

Initializes the **SOUND SELECT** storable memories of all parts and sets them to the factory presets.

SEQUENCER:

Initializes the memory contents of all tracks.

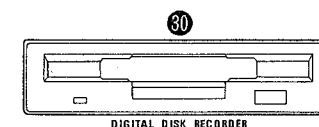
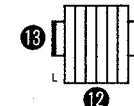
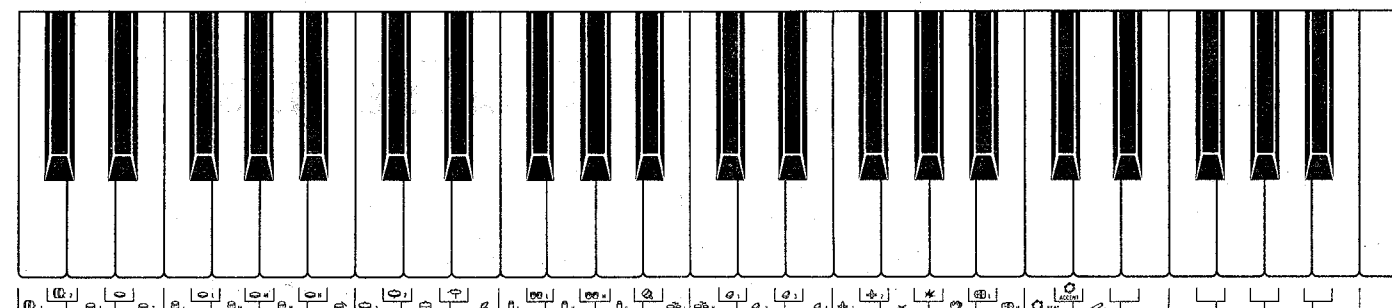
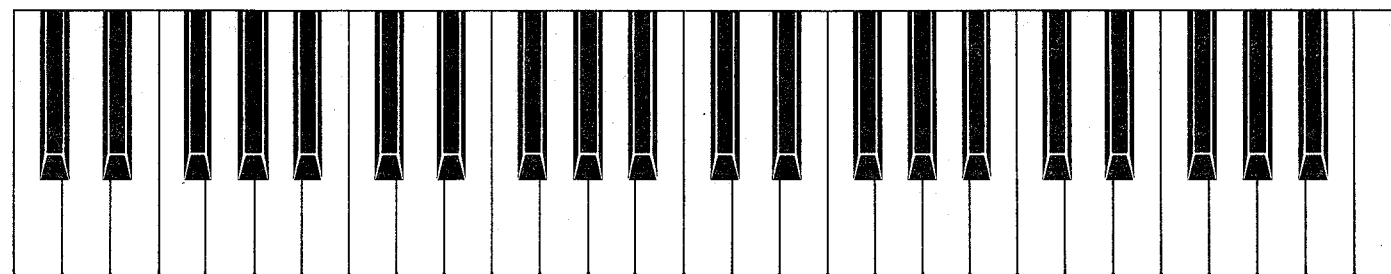
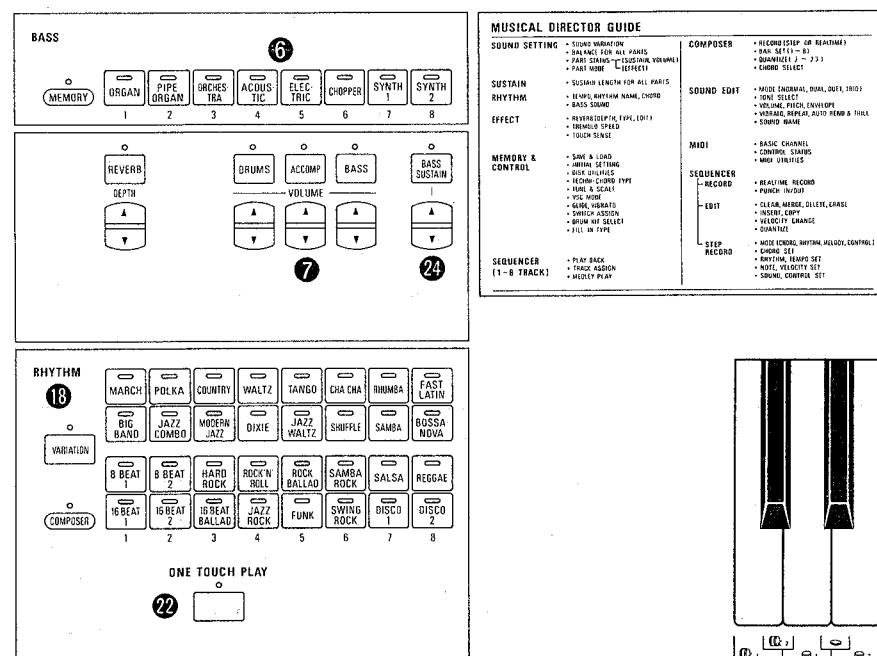
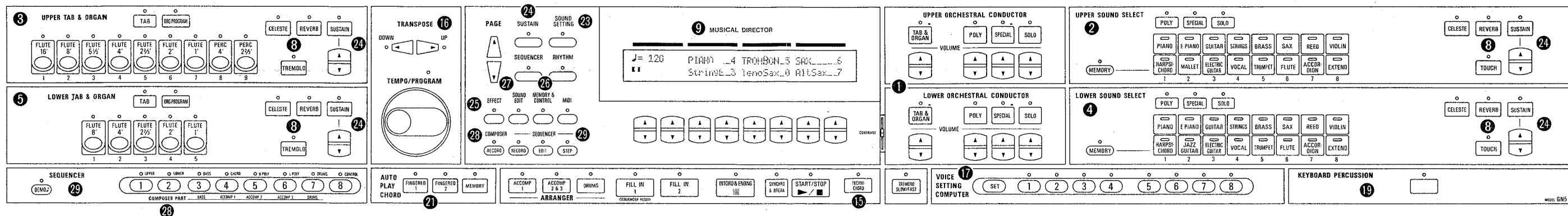
4. Press ④ button to change to the following confirmation display.

2 : INITIAL SETTING
SURE? [NO] [YES]

① ② ③ ④

- Press ④ button for [YES] to execute the initialization procedure.
- Press ③ button for [NO] to cancel the initialization procedure.

ARRANGEMENT OF CONTROL PANEL



BASIC FUNCTIONS

1 ORCHESTRAL CONDUCTOR

These buttons allow you to select groups of sounds, or parts, and their effects instantly. The upper and lower keyboard parts are selected respectively with the **UPPER** and **LOWER ORCHESTRAL CONDUCTOR**. The volume for each part is adjusted with the respective **VOLUME** buttons in this section.

2 UPPER SOUND SELECT

With this block of buttons, you select the sound for each of three sound groups (parts). First you select a part (**POLY**, **SPECIAL** or **SOLO**), and then you select one of the many preset sounds for that part. Store a different sound for each part. When a part is selected in the **UPPER ORCHESTRAL CONDUCTOR**, the sound you set for that part is selected for the upper keyboard. **MEMORY** buttons are for storing unique sounds you create yourself with the **SOUND EDIT** feature. The volume of each part is adjusted with the respective **VOLUME** buttons in the **UPPER ORCHESTRAL CONDUCTOR**.

3 UPPER TAB & ORGAN

TAB sounds are selected for the upper keyboard by turning on the **TAB & ORGAN** button in the **UPPER ORCHESTRAL CONDUCTOR**. Included are the flute and percussive sounds, plus tremolo, sustain, reverb and celeste effects. When the **ORG PROGRAM** button is on, the programmable tab buttons are used to select 9 organ sounds (from 17 factory-preset sounds). The volume is adjusted with the respective **VOLUME** buttons in the **UPPER ORCHESTRAL CONDUCTOR**.

4 LOWER SOUND SELECT

Sounds are selected for the lower keyboard parts in the same way as for the **UPPER SOUND SELECT** parts. The lower keyboard sounds are used mostly for accompaniment.

5 LOWER TAB & ORGAN

Select these sounds for the lower keyboard by turning on the **TAB & ORGAN** button in the **LOWER ORCHESTRAL CONDUCTOR**. Like the **UPPER TAB & ORGAN** buttons, the sounds can be combined or selected individually.

6 BASS

These are the sounds for the pedal keyboard. **MEMORY** buttons are for storing unique sounds you create yourself with the **SOUND EDIT** feature. The **BASS** sound volume is adjusted with the respective buttons in the separate **VOLUME** section.

7 VOLUME

The volumes for the upper and lower keyboard parts are controlled with the corresponding **VOLUME** buttons in the respective **UPPER** and **LOWER ORCHESTRAL CONDUCTOR**. The **BASS** volume is adjusted with the **BASS** buttons in the separate **VOLUME** section.

8 Effects

The **CELESTE**, **TREMOLO**, **SUSTAIN** and **REVERB** effects are turned on and off for the selected upper and lower keyboard sounds. For the **SOUND SELECT** sound, the **TOUCH** effect is also available.

9 MUSICAL DIRECTOR

In the normal mode, the **MUSICAL DIRECTOR** indicates the selected sounds, volumes, rhythm, tempo, and all other information about the panel settings. The display is also used for setting the various **SOUND SETTING**, **SUSTAIN**, **EFFECT** and **MEMORY & CONTROL** functions. The amazing number and range of settable functions makes the GN series organ truly an instrument which you can fashion to fit exactly your particular playing style and tastes. And finally, the **MUSICAL DIRECTOR** is your key to programming when using the **SOUND EDIT**, **COMPOSER** and **SEQUENCER** features of your organ. The **CONTRAST** is adjusted with the sliding control.

12 Expression pedal

Increase and decrease the loudness of all the organ sound as you play to add expression to the music.

13 Glide control

Lower the pitch of the organ by one half-tone or whole tone by pressing the left foot switch. This is used, for example, to get the Hawaiian guitar effect.

15 TECHNI-CHORD

Chord notes played on the lower keyboard are added to melody notes played on the upper keyboard. Choose from four harmonic styles.

16 TRANSPOSE

C is the standard setting, but you can raise or lower the key of the entire organ with the two buttons. The transposed key is shown on the normal mode display of the **MUSICAL DIRECTOR**. The two buttons are also used to move the cursor on the display when assigning names to your recorded creations or when step-recording/correcting **COMPOSER** and **SEQUENCER** performance data.

17 VOICE SETTING COMPUTER

Set up the sounds and effects for the upper, lower and pedal keyboards, and then store them in these 8 buttons for instant recall as you play. You can expand the range of the storable settings to include rhythm selection, tempo setting and more.

18 RHYTHM

Select one of the various preset rhythms and start it instantly with the **START/STOP** button. Other features which enhance the **RHYTHM** unit are **SYNCHRO & BREAK**, **INTRO & ENDING**, **FILL IN**, **ARRANGER** and a foot switch. The volume is adjusted with the **DRUMS** buttons in the **VOLUME** section.

19 KEYBOARD PERCUSSION

One press of the **KEYBOARD PERCUSSION** button transforms your lower keyboard into a whole band of percussive instruments and special sounds. The keys are picture-coded for quick and easy selection.

21 AUTO PLAY CHORD

This feature is activated when the **FINGERED 1** or **FINGERED 2** button is turned on. A full chord and a bass note are automatically produced when you play a key on the lower keyboard. Play major, minor, seventh or minor seven chords and the bass note just by pressing one key. The volume for each part of the **AUTO PLAY CHORD (ACCOMP, BASS, DRUMS)** is adjusted with the respective buttons in the separate **VOLUME** section.

22 ONE TOUCH PLAY

With this special feature, you select a rhythm or type of music, and the appropriate sounds and effects are automatically set.

23 SOUND SETTING functions

Turning on this button readies the **MUSICAL DIRECTOR** for use as a controller to preset sounds, effects, volume, and mode setting for each part.

24 SUSTAIN functions

Turn this button on to set the sustain on/off status and sustain time for each part.

25 EFFECT functions

In the effect-setting mode, you use the **MUSICAL DIRECTOR** to set a wide range of functions, including type and depth of **REVERB**, tremolo speed and touch effect.

26 MEMORY & CONTROL functions

The settable functions in this mode include memory initialization, **TECHNI-CHORD** harmony style, tuning, scale-effect, **VOICE SETTING COMPUTER** range, glide pitch-change, vibrato depth, switch assign, drum kit contents, fill-in pattern, and more.

27 SOUND EDIT

With this feature you select a preset sound, modify it until it sounds just the way you like it, and then store it in one of the memory locations. Edit and store up to 8 sounds for each of the **UPPER** and **LOWER SOUND SELECT** sections and up to 8 **BASS** sounds.

28 COMPOSER

Create original rhythm patterns, either in real-time or with the step method, or modify preset rhythms. Store up to 8 new rhythms in the reserved memory locations for instant recall as you play.

29 SEQUENCER

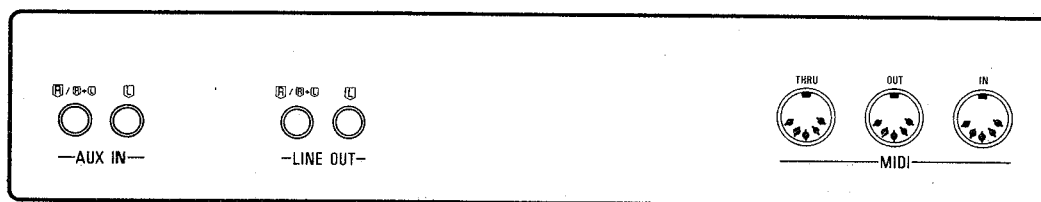
With this feature you can separately play and store the parts for an entire tune. Then have the whole ensemble performance played back automatically. This is a true 8-track sequencer, with full real-time recording, step recording and editing features.

30 Digital Disk Recorder (optional for GN5K)

The Digital Disk Recorder allows you to store up to 20 performances on a 3.5-in. 2DD memory disk.

TERMINALS

(On the rear panel)



■ AUX IN (input level 150mV, 10kΩ)

Use these inputs to connect the audio outputs of other audio equipment, such as a tape deck, VCR, tuner, or an audio mixer, for playback through the organ. This terminal runs through the expression pedal circuit and you can control the volume of the connected instrument with the expression pedal. If connecting a monaural line, connect it to the **R/R+L** terminal.

■ LINE OUT (output level 300mV, 600Ω)

Use these outputs to connect the audio output of the organ to other audio equipment, such as a tape deck, VCR, audio mixer, tone cabinets, or additional amplifier/speaker systems.

■ MIDI (Musical Instrument Digital Interface)

MIDI is standard specification that enables connection to equipment such as synthesizers and personal computers. Data transmission and reception are possible between the Technics organ and equipment provided with MIDI terminals.

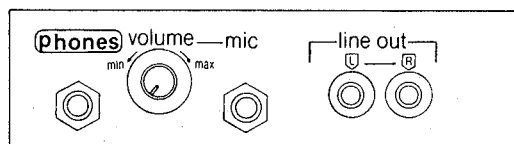
IN: The terminal that receives data from external equipment.

OUT: The terminal that transmits data from the organ to external equipment.

THRU: The terminal that transfers data from the **IN** terminal directly to other equipment.

- Use a 5-pin DIN cord (less than 15m long) for these connections.

(Below the lower keyboard)



PHONES (Use headphones with 16 ohm impedance.) For silent practice headphones may be used. When plugged in, the organ's speaker system is automatically switched off, and the entire organ is heard only through the headphones.

MIC (input level 7.5mV, 10kΩ)

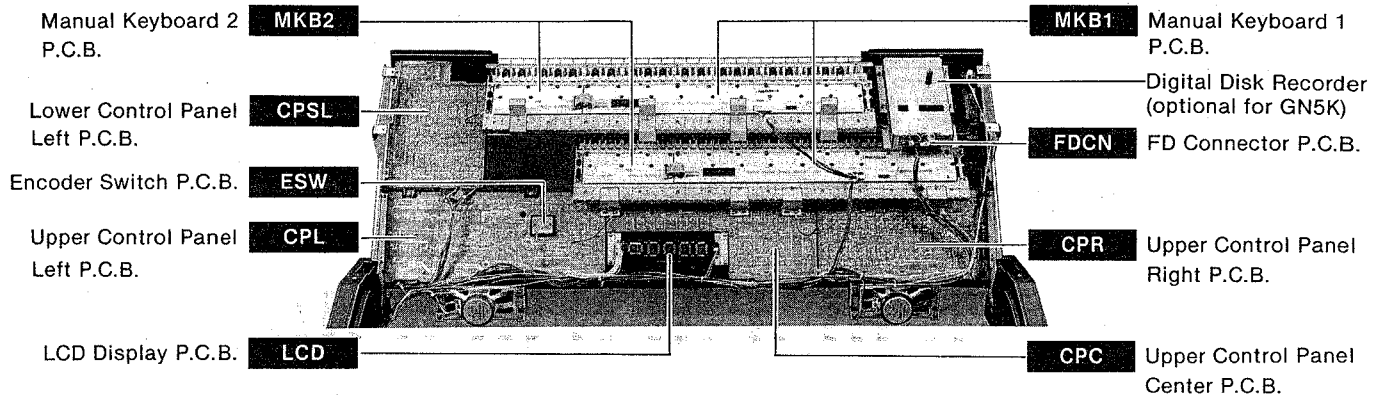
The organ will accept a microphone of the uni-directional type. This type of microphone reduces feedback to the minimum.

MIC VOLUME balances instrumental or vocal sounds fed into the microphone with the loudness of the organ.

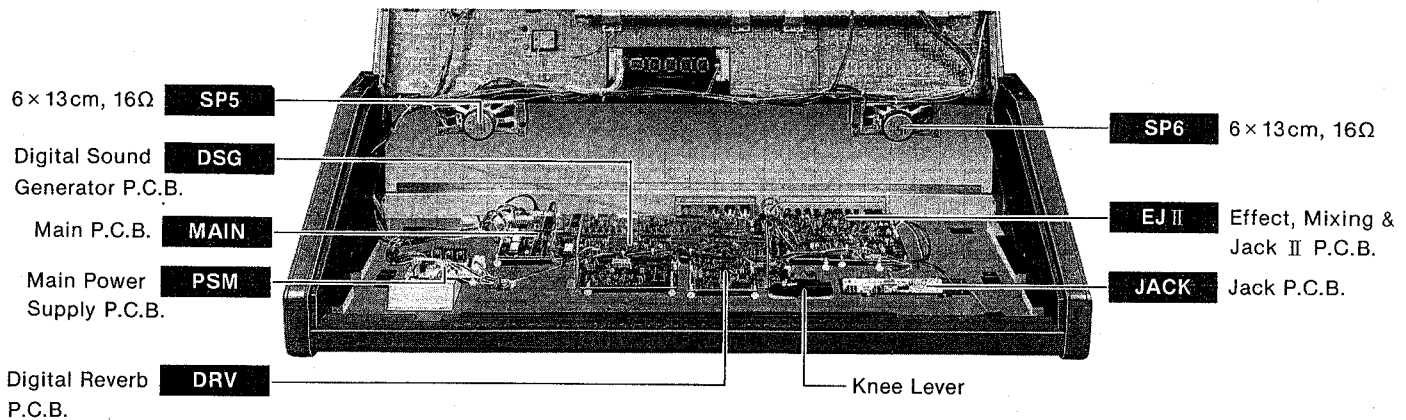
LINE OUT (output level 300mV, 600Ω)

Phono jacks are provided for 2-channel (L/R) output. Use these outputs to connect the audio output of the organ to other audio equipment, such as a tape deck, VCR, audio mixer, tone cabinets, or additional amplifier/speaker systems.

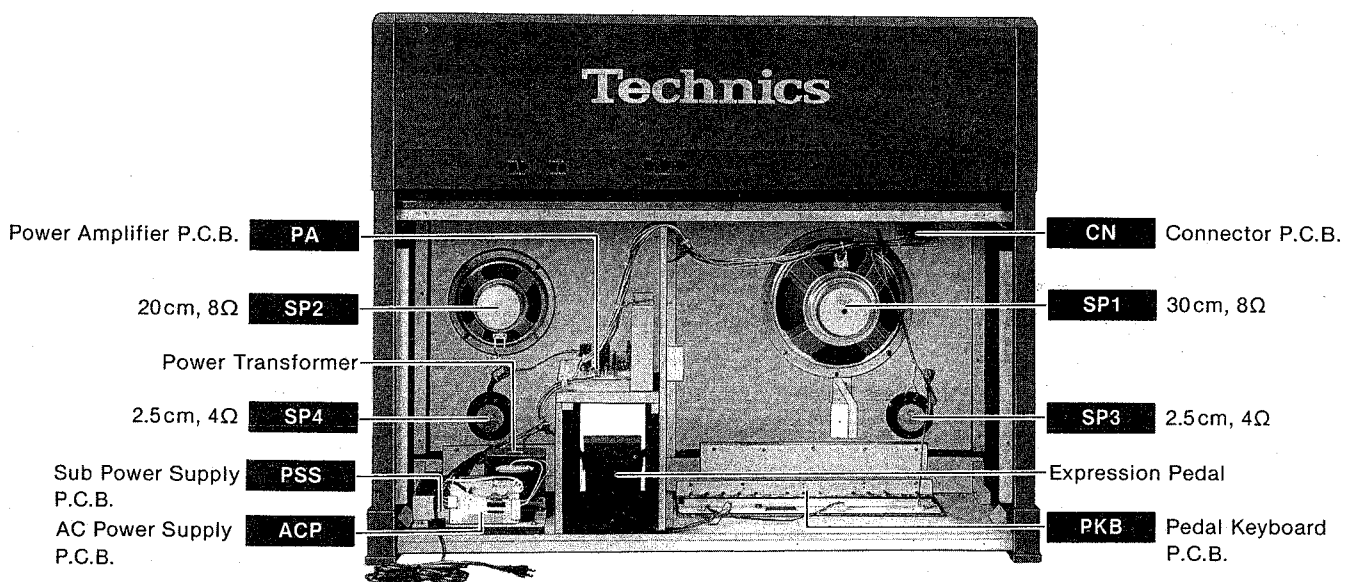
PARTS LOCATION



[Photo-1]



[Photo-2]

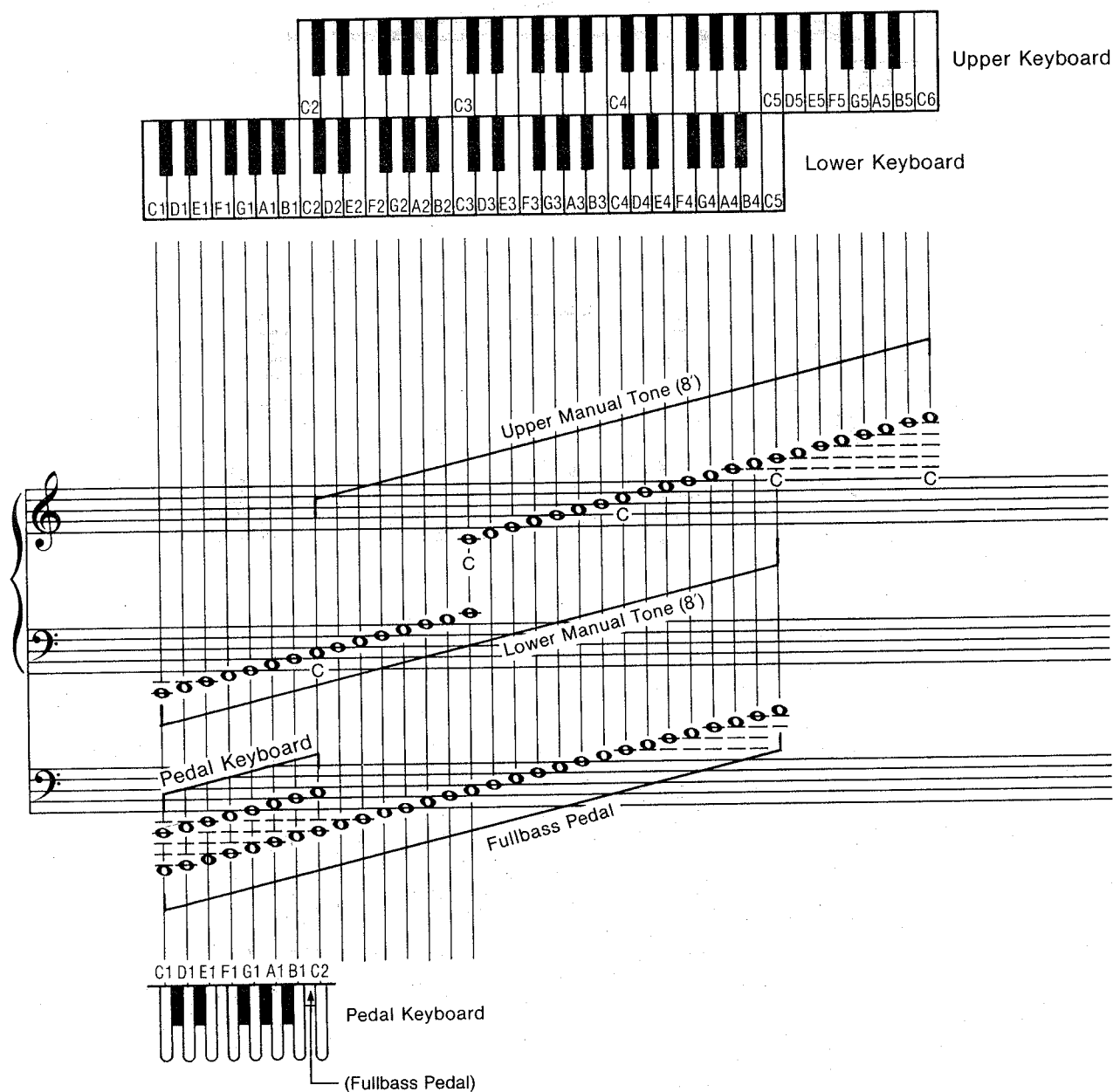


[Photo-3]

KEYBOARD RANGES

Upper Keyboard 49 Keys (4 Octaves)
 Lower Keyboard 49 Keys (4 Octaves)
 Pedal Keyboard 13 Keys (1 Octave)+ Fullbass Pedal

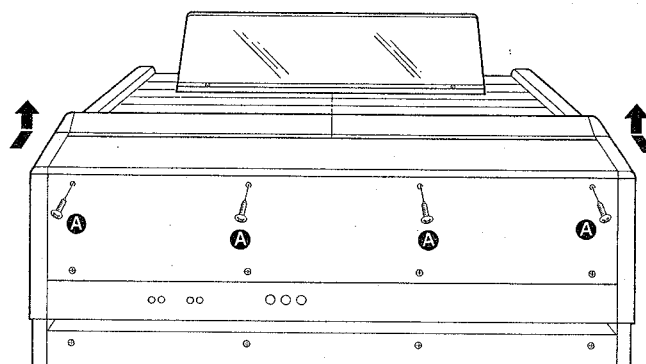
* An 8-foot compass is used for each keyboard.



DISASSEMBLY INSTRUCTIONS

1 Top Cover

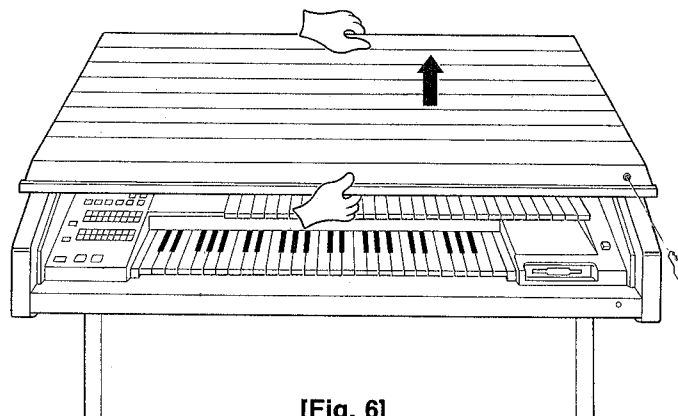
1. Remove the top cover holding screws located on the rear board. (A 4 pcs.)
2. Remove the top cover, sliding it forward and lift.



[Fig. 5]

2 Sliding Cover

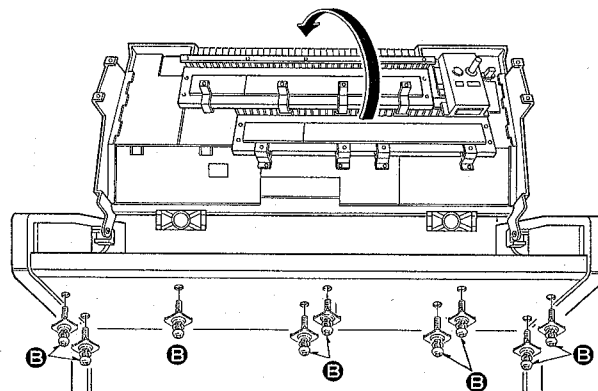
1. Remove the top cover. (See step 1.)
2. Unlock the sliding cover with the accessory key.
3. Remove the sliding cover in its fully closed position.



[Fig. 6]

3 Control Panel with Keyboard Unit

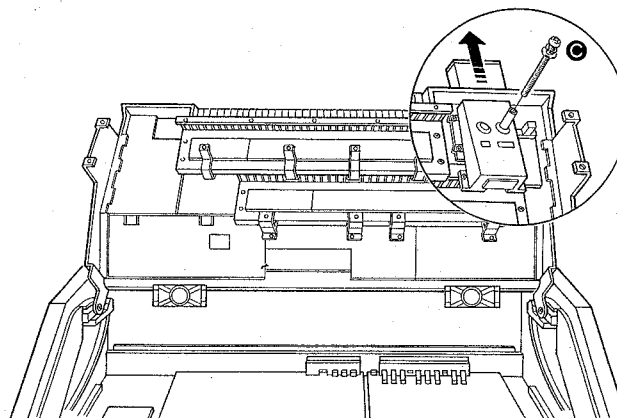
1. Remove both top cover and sliding cover. (See steps 1 and 2.)
2. Remove the control panel holding screws located under the upper cabinet. (E 9 pcs.)
3. The control panel with keyboard unit can now opened upwards.



[Fig. 7]

4 Digital Disk Recorder (optional for GN5K)

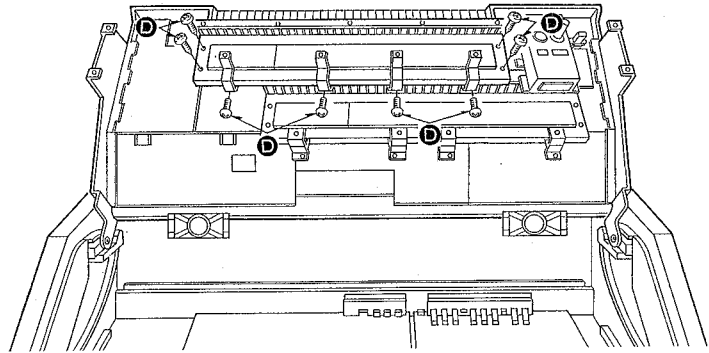
1. Open the control panel with keyboard unit. (See step 3.)
2. Remove the DDR holding screw. (C 1 pcs.)
3. Pushing the DDR from the window of the chassis.
4. Then the DDR can be removed.



[Fig. 8]

5 Lower Keyboard Ass'y

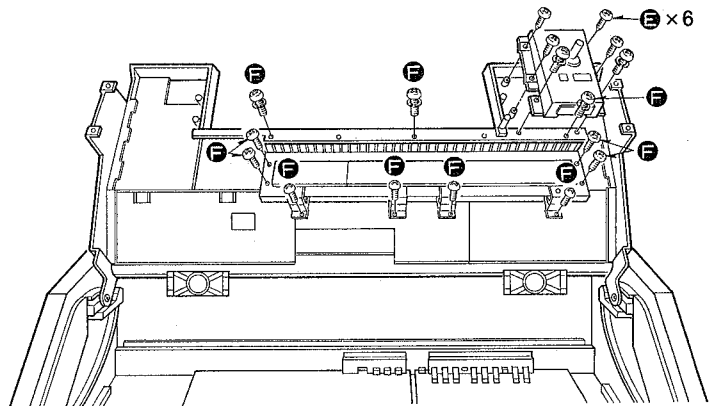
1. Open the control panel with keyboard unit.
(See step 3.)
2. Remove the connectors from the keyboard P.C.B.
3. Remove the lower keyboard ass'y holding screws. (Ⓢ 8 pcs.)
4. The lower keyboard ass'y can be removed.



[Fig. 9]

6 Upper Keyboard Ass'y

1. Open the control panel with keyboard unit.
(See step 3.)
2. Remove the digital disk recorder and lower keyboard ass'y. (See step 4 and 5.)
3. Remove the connectors from the keyboard P.C.B. and FD connector P.C.B.
4. Remove the digital disk recorder mounting chassis. (Ⓢ 6 pcs.)
5. Remove the upper keyboard ass'y holding screws. (Ⓢ 11 pcs.)
6. The upper keyboard ass'y can be removed.



[Fig. 10]

7 Key (s)

Disassembly:

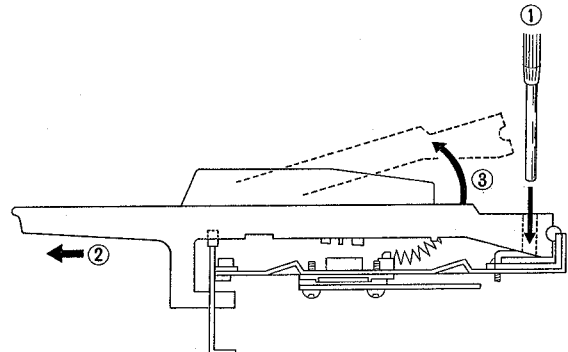
1. Remove the keyboard ass'y from the cabinet.
(See steps 5 & 6.)
2. Use 1/8 inch Phillips screw driver and insert it to the hole at end of the key for release the key as shown in Fig. 11.
3. Pull the key to the toward.

Note:

If a black key is to be replaced it is necessary to remove both adjacent white keys fast.

Assembly:

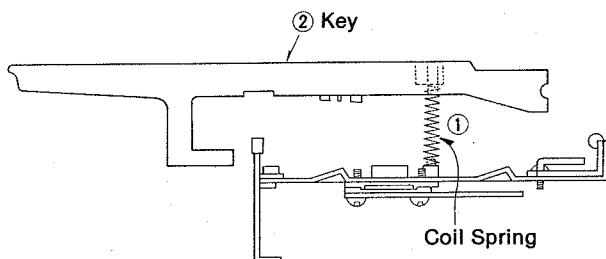
1. Place the coil spring on to the chassis as shown Fig. 12.
2. Place the key into position as shown Fig. 12.
3. The front part of the key suppose to place into the position first, then place the end of the key in to the position as shown Fig. 13.



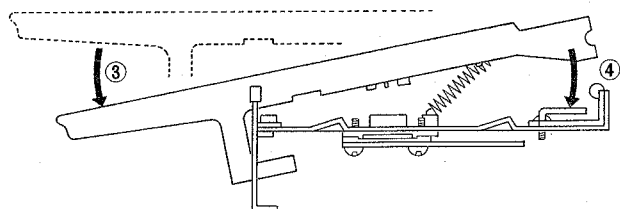
[Fig. 11]

Note:

If the black key and white key are removed, start to mount the black key first.



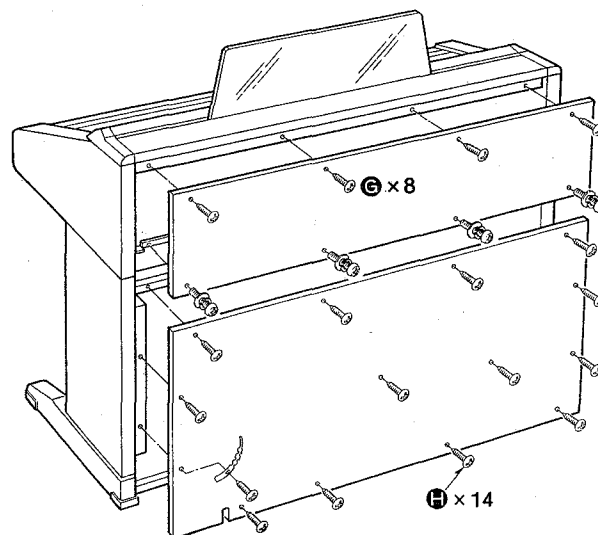
[Fig. 12]



[Fig. 13]

8 Rear Board

1. Upper rear board
Remove the upper rear board holding screws.
(⊙ 8 pcs.)
2. Lower rear board
Remove the lower rear board holding screws.
(⊙ 14 pcs.)



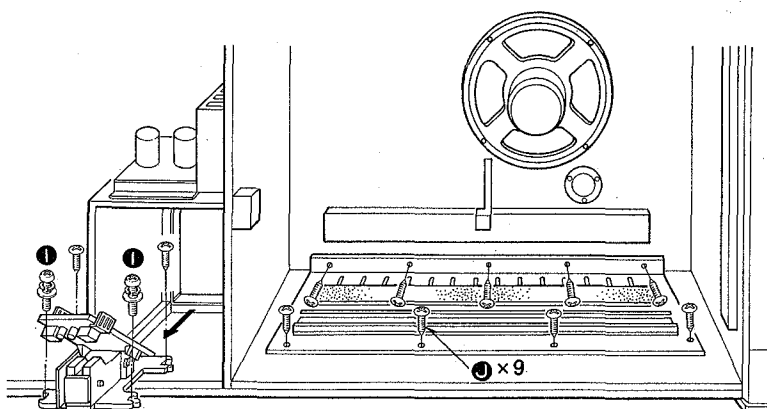
[Fig. 14]

9 Expression Pedal Ass'y

1. Remove the lower rear board of the cabinet. (See step 8.)
2. Remove the expression pedal mounting screws. (⊙ 4 pcs.)
3. The expression pedal can be removed.

10 Pedal Keyboard Ass'y

1. Remove the lower rear board of the cabinet. (See step 8.)
2. Remove the pedal keyboard holding screws. (⊙ 9 pcs.)
3. Tilt the entire unit a little to toward to the rear very carefully for easier to take the pedal keyboard out from the bottom wood board.



[Fig. 15]

MEASUREMENTS AND ADJUSTMENTS

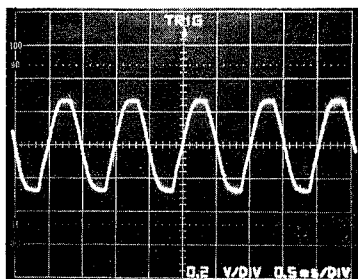
■ Measuring Equipment

- Oscilloscope 20MHz, 10: 1 probe
- Capacitor, 50V 1 μ F (ECEA1HN010S)
- Oscillator, 1kHz sine wave, 0~10Vp-p, 600 Ω

ADJUSTMENT	MEASURING CONDITIONS	EQUIPMENT	ADJUSTMENT P.C.B.	ADJ. POINT	CONNECT METER TO	METER READING
BBD Bias (TREMLO)	any position	Oscilloscope and oscillator	EJ II P.C.B.	VR1	IC15-⑦ pin	Photo-A
1. Connect the oscilloscope to IC15-⑦ pin of EJ II circuit board. 2. Input 1kHz sine wave to IC14-③ pin by oscillator through capacitor of less than 50V 1 μ F. Then, adjust the output level of oscillator until the sinewave on the oscilloscope is clipped. 3. Adjust VR1 so that the output waveforms on the oscilloscope are evenly clipped at top and bottom.						
BBD Bias (CELESTE)	any position	Oscilloscope and oscillator	EJ II P.C.B.	VR2	IC33-① pin	Photo-A
1. Connect the oscilloscope to IC33-① pin of EJ II circuit board. 2. Input 1kHz sine wave to IC31-③ pin by oscillator through capacitor of less than 50V 1 μ F. Then, adjust the output level of oscillator until the sinewave on the oscilloscope is clipped. 3. Adjust VR2 so that the output waveforms on the oscilloscope are evenly clipped at top and bottom.						

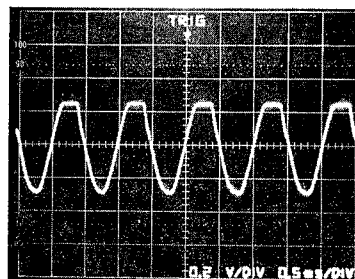
BBD bias adjustment

○: Good

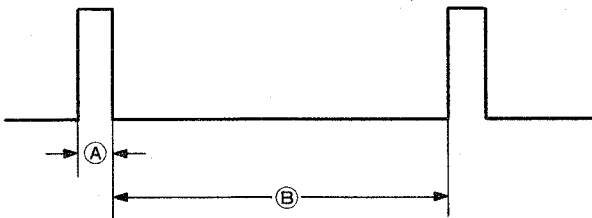


[Photo-A]

×: Fault



[Photo-B]

EXP. Control pulse width	Main volume max. Expression pedal max. any key on	Oscilloscope	EJ II P.C.B.	VR3	IC51-⑫ pin	Fig. A
1. Connect the oscilloscope to IC51-⑫ pin of EJ II circuit board. 2. Adjust the VR3 so that the pulse width ① and ② ratio, as shown in Fig. A.						
 ①:②=1:9 [Fig. A]						

ADJUSTMENT	MEASURING CONDITIONS	EQUIPMENT	ADJUSTMENT P.C.B.	ADJ. POINT	CONNECT METER TO	METER READING
DRV bias	any position	Oscilloscope	DRV P.C.B.	VR1	Check Point ⑫, ⑬	Photo-C Fig. B

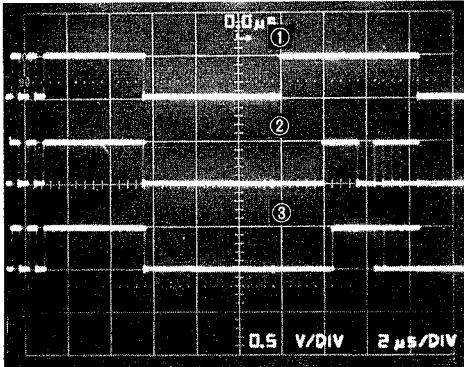
1. Connect the oscilloscope channel 1 to **DRV** circuit check point ⑫ and connect the oscilloscope external trigger in to **DRV** check point ⑬.
(oscilloscope Diviation setting must be=0.5V/DIV, 2μs/DIV)

2. Turn the adjustment VR1 to full clockwise.

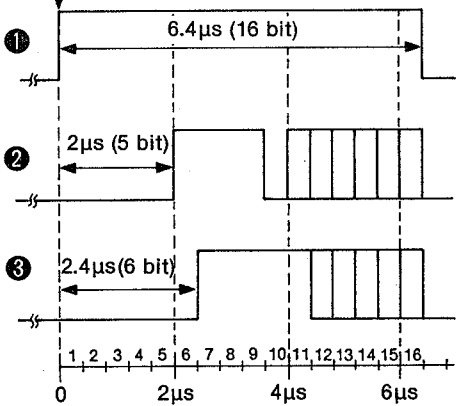
3. Turn the VR1 counter-clockwise gradually to find the data starting point turns to HIGH (refer photo C-①, & Fig. B-①) and adjust the strating point to the oscilloscope diviation line for easy counting for next procedure.

4. Confirm the first 5 bits (2.0μs) are low when turn the VR1 to full counter-clockwise. (refer photo C-②, Fig. B-②)

5. Turn the VR1 clockwise gradually and make first 6 bits (2.4μs) turn to low. (refer photo C-③, Fig. B-③)



[Photo-C]

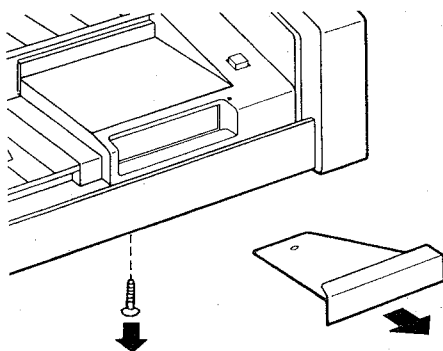


[Fig. B]

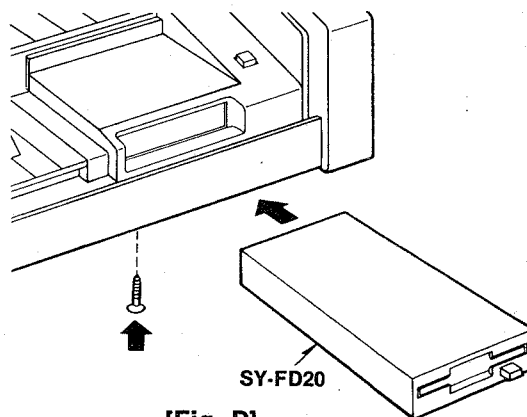
HOW TO INSTALL THE DIGITAL DISK RECORDER

■ The Digital Disk Recorder SY-FD20 is included with the model SX-GN5, but not with model SX-GN5K. When using the optiona Digital Disk Recorder (SY-FD20), Refer the instruction below for installation.

1. Make sure that the Technics organ is turned off.
2. Remove the screw from under the right side of the keyboard. The cover can now be removed from the Digital Disk Recorder compartment.
3. Insert the Digital Disk Recorder into the compartment opening and push it in firmly as far as it will go. Secure the Digital Disk Recorder with the screw that you removed in step 2.



[Fig. C]



[Fig. D]

PRECAUTIONS BEFORE SERVICING

■ Precautions for measuring of the output waveforms.

1. Set to the INITIAL mode before measurement. (Refer to page I-3.)
2. After INITIAL mode, set the measurement conditions as each check points.
3. The waveform was measured by "National Digital Storage Oscilloscope VP-5730A". Therefore the waveforms of musical tone signals shown may somewhat change due to variation of timing of triggering.
4. Since the 1/10 of the test probe is used, the indicated voltage value on bottom part of the each waveform photo is 1/10 of the actual value. (e.g. 0.2V/cm should be 2.0V/cm)

■ Important safety notice:

Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

■ Symbolic Marks

The symbolic marks for resistors and capacitors which used in this circuits are classified as following TABLE-1 and TABLE-2.

1. RESISTORS

- Resistors without symbolic mark are FIXED CARBON FILM RESISTORS (ERD-type).
- All resistors are 1/4WATT, $\pm 5\%$ TOLERANCE unless otherwise designated in the schematic diagrams.

(TABLE-1)

SYMBOL	SPECIFICATION	SYMBOL	SPECIFICATION
Ⓕ	Fixed Carbon Film Resistors "FLAME-PROOF" (ERD—F—type)	Ⓕ	Fixed Metal Film Resistors "FLAME-PROOF" (ERX—type)
Ⓕ	Fixed Wire Wound Resistors "FLAME-PROOF" (ERF—type)	Ⓕ	Fuse Type Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERQ—type)
Ⓕ	Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERG—type)	Ⓕ	Fuse Type Fixed Carbon Film Resistors "FLAME-PROOF" (ERD2FC—type)
Ⓖ	Fixed Metal Film Resistors (Precision and High Stability) (ERO—type)		

2. CAPACITORS

- Capacitors without symbolic mark are POLYESTER CAPACITORS. (ECQM-type, ECQG-type, $\pm 10\%$ Tolerance)
- Polarized capacitors without symbolic mark are Aluminum Electrolytic Capacitors.
(ECEA—type, $\pm 20\%$ Tolerance)

(TABLE-2)

SYMBOL	SPECIFICATION	TYPE
Ⓐ	Non-Polarised Electrolytic Capacitors	ECEA—KN—type
Ⓐ	Non-Polarised Electrolytic Capacitors (for Network System)	ECEA—Y—type
Ⓜ	Aluminum Electrolytic Capacitors (Low leakage current type)	ECEA—M—type
Ⓒ	Aluminum Electrolytic Capacitors (Low impedance type)	ECEA—Z—type
Ⓣ	Metalized Plastic Film Capacitors (TF Series)	ECQV—type
	Polyester Film Capacitors	ECQB—type
⓪	Temperature Compensating Ceramic Capacitors	ECC—type
	High-Dielectric Constant Ceramic Capacitors	ECK—type ECR—type
	Metalized Polyester Film Capacitors for Across the Line	ECQ—EW—type
	Aluminum Electrolytic Capacitors for smoothing Circuit	ECES—type
Ⓣ	Tantalum Solid Electrolytic Capacitors	ECS—type

SYMPTOMS WHICH APPEAR TO BE SIGNS OF TROUBLE

The following changes in performance may occur in the Technics organ but do not indicate trouble:

Phenomenon	Remedy
------------	--------

■ SOUNDS and EFFECTS

The buttons, keys, etc. malfunction.	• Turn off the PLAY button once, then turn it on again. • If the above procedure is not successful, turn off the PLAY button once. Then, while pressing 16 BEAT 1, 16 BEAT 2 and 16 BEAT BALLAD in the RHYTHM section at the same time, turn the PLAY button on again. (Note that, in this case, the stored contents of the SEQUENCER, COMPOSER, etc. are erased.)
When a key is pressed, it does not sound.	The buttons and keys do not function when the DEMO  button is on. Press the DEMO  button to turn it off.
The sound of a part cannot be heard.	• The corresponding volume is set to off in the ORCHESTRAL CONDUCTOR. Use the  buttons below the display to adjust the volume for that part to an appropriate level. • The LOCAL CONTROL for the part is set to OFF. Set the LOCAL CONTROL to ON.
When the TAB & ORGAN is selected in the ORCHESTRAL CONDUCTOR , it does not sound.	If all the FLUTE and PERC buttons are off while the TAB & ORGAN button is on, it does not sound. Turn on the FLUTE or PERC button to select the sound.
When many keys are pressed at the same time, some sounds cannot be heard.	• The DUAL mode is selected. • MONO or SOLO mode is selected with the PART ASSIGN function.
The sound of the lower keyboard or pedal keyboard does not stop.	This occurs if the lower keyboard is played when the FINGERED 1 or 2 and the MEMORY buttons are on. Turn off the MEMORY button.
The knee lever, foot switch(es) and full bass pedal do not operate properly. For example, the knee lever does not turn the SUSTAIN function on and off.	Any functional on and off operation other than the factory presets are storable in these switches. For example, the knee lever can turn the TECHNI-CHORD on and off. Store your favorite functions to turn them on and off.

■ RHYTHM

The rhythm does not start.	• The DRUMS button in the VOLUME section is turned off. • A COMPOSER number button in which no data is stored has been selected. • When a SEQUENCER track button(s) is on, the rhythm will not start unless the rhythm part has been stored. • When the clock mode is set to MIDI, the rhythm does not start if no MIDI clock signal is received from another instrument. When using only the organ, return the clock mode to the internal clock, for example by turning off the PLAY button once.
----------------------------	--

■ AUTO PLAY CHORD

The ACCOMP 1 , 2 or 3 part does not sound when the automatic accompaniment is used.	• When both the ACCOMP 1 and 2&3 buttons of the ARRANGER are off, the ACCOMP part of the AUTO PLAY CHORD or COMPOSER function does not sound. Turn on the desired ACCOMP 1 or 2&3 button. • When the lower keyboard is played with the KEYBOARD PERCUSSION, ACCOMP and BASS automatic accompaniment patterns do not sound. Play the chord on the lower keyboard after pressing the KEYBOARD PERCUSSION button to turn it off.
--	--

Phenomenon	Remedy
------------	--------

■ SOUND EDIT

When a chord is played on the keyboard, each key sounds different.	DUET or TRIO mode sound is composed of multiple tones. When a chord is played, different tones are assigned to each key.
--	--

■ COMPOSER

Storage is not possible.	•The remaining storage capacity of the COMPOSER memory is 0. Erase any COMPOSER memory number in which a pattern is stored. Save it in a memory disk (SY-D20), if necessary. •In the real-time recording mode, press the START/STOP button when the display is PAGE 3, and recording will start.
The setting of the time signature or the number of measures is not possible.	The time signature or the number of measures cannot be changed when a pattern is stored in the COMPOSER . Erase the stored pattern.
The stored rhythm pattern plays back at intervals.	This occurs when the number of stored measures is less than the specified number. Store a pattern of the same number of measures which is specified on the PAGE 2 display.
The timing of a rhythm pattern which was stored in the real-time mode is not correct.	The smallest note unit that can be stored is defined by setting the QUANTIZE level. When the timing of a played note is off for the QUANTIZE level, it will be corrected to the nearest note unit and stored.

■ SEQUENCER

Storage is not possible.	•The indicator for the track to be used is not flashing. •The remaining storage capacity of the SEQUENCER memory is 0. Erase other memory contents with the TRACK CLEAR or SONG CLEAR function. (If desired, first save them in a memory disk [SY-D20].)
Multi-track recording does not work.	When the indicator for the playback track is lit, press the START/STOP button to start recording.
The displayed measure number during recording or playback does not coincide with the performance.	The number of measures corresponds to the time signature of the rhythm which was selected at the beginning of recording or playback. If the time signature is modified by changing the rhythm, store the rhythm change data in the RHYTHM track.
The automatic rhythm does not start when playback has been started during the performance.	When automatic playback is begun at a point after the stored rhythm start, the rhythm will not start.

■ DIGITAL DISK RECORDER (optional for GN5K)

The Digital Disk Recorder produces a noise during storage or automatic performance.	This occurs when the Digital Disk Recorder searches for a storage location. It does not indicate a problem.
When the operation to load from the memory disk is performed, the contents of the organ's internal memory are erased.	When performing the load operation from a memory disk, the organ's internal memory changes to that stored in the memory disk. To preserve a song in the organ's memory, save it in a memory disk before performing the load procedure.

ERROR DISPLAY

Display	Cause
■ COMPOSER/SEQUENCER	
MEMORY full!!	• The COMPOSER or SEQUENCER memory is full.
MEASURE error!!	• A measure number which does not exist was specified. • The measure number was specified improperly.
REPEAT exists	• You attempted to use the copy, insert or delete procedure for a SEQUENCER chord track or rhythm track in which a repeat mark is stored.
PART error!!	• Illegal edit attempt, such as in a melody track or rhythm track.
DATA exists	• You attempted to use the COMPOSER function to modify a beat or measure of memory where a pattern was stored.
TRACK error!!	• You attempted to edit a SEQUENCER track in which no song or data is stored.
OPERATION error!!	• Recording is ending with no punch out point specified (the punch in point was specified).
■ MEMORY DISK	
LOAD error!!	• Loading failed.
SAVE error!!	• Saving failed.
DELETE error!!	• Deleting a song failed.
VERIFY error!!	• Data verification failed. • Loaded, saved, or copied data has errors.
FORMAT error!!	• Formatting failed.
NO DISK	• A memory disk is not inserted.
PROTECT error!!	• You attempted to save to a memory disk which is write protected.
SONG NOT FOUND	• You attempted to load a song which does not exist in the memory disk.
DISK FULL!!	• Available memory area on the memory disk is full. Erase some stored tunes on the memory disk or use a new memory disk.

MIDI IMPLEMENTATION CHART

Organ

[SX-GN3(K)/SX-GN5(K)/SX-GN7(K)/SX-GN9(K)]

(Transmitted)

Function		UPPER POLY	UPPER SPECIAL SOLO (GN3/GN5/ EXTRA (GN7/GN9)	LOWER POLY	LOWER SPECIAL SOLO (GN3/GN5/ EXTRA (GN7/GN9)	ACCOMP 1~3	BASS	DRUMS	CONTROL	Remarks
Basic Channel	Default	1~16	1~16	1~16	1~16	1~16	1~16	1~16	1~16	memorized
	Changed	1~16	1~16	1~16	1~16	1~16	1~16	1~16	1~16	
Mode	Default	3	3	3	3	3	3	3	3	OMNI OFF POLY MODE
	Messages Altered	×	×	×	×	×	×	×	×	
Note Number	True voice	0~127	0~127	0~127	0~127	0~127	0~127	0~127	—	Changes depending on the position of the Octave Shift or Transpose control.
		—	—	—	—	—	—	—	—	
Velocity	Note ON	○	○	○	○	○	○	○	—	
	Note OFF	× (9nH:v=0)	× (9nH:v=0)	× (9nH:v=0)	× (9nH:v=0)	× (9nH:v=0)	× (9nH:v=0)	× (9nH:v=0)	—	
After Touch	Key's Ch's	×	×	×	×	×	×	×	×	
		*○× (GN9)	*○× (GN9)	*○× (GN9)	*○× (GN9)	×	×	×	×	
Pitch Bender		×	×	×	×	×	×	×	×	
		*○× (GN9)	*○× (GN9)	*○× (GN9)	*○× (GN9)	*○× (GN9)	*○× (GN9)	×	×	
Control Change	1	*○×	*○×	*○×	*○×	*○×	*○×	×	×	modulation (GN9) volume main volume expression pedal sustain auto play chord intro, fill in, ending tremolo chorus (effect 2) (GN9) celeste (effect 1)
	7	*○×	*○×	*○×	*○×	*○×	*○×	*○×	*○×	
	11	×	×	×	×	×	×	×	*○×	
	64	*○×	*○×	*○×	*○×	*○×	*○×	×	×	
	80	×	×	*○×	×	×	×	×	×	
	82	×	×	×	×	×	×	*○×	×	
	92	*○×	×	*○×	×	×	×	×	×	
	93	*○×	*○×	*○×	*○×	*○×	*○×	×	×	
	94	*○×	*○×	*○×	*○×	*○×	×	×	×	
							×	×		

Mode 1: OMNI ON, POLY
Mode 3: OMNI OFF, POLY

Mode 2: OMNI ON, MONO
Mode 4: OMNI OFF, MONO

○: Yes
×: No

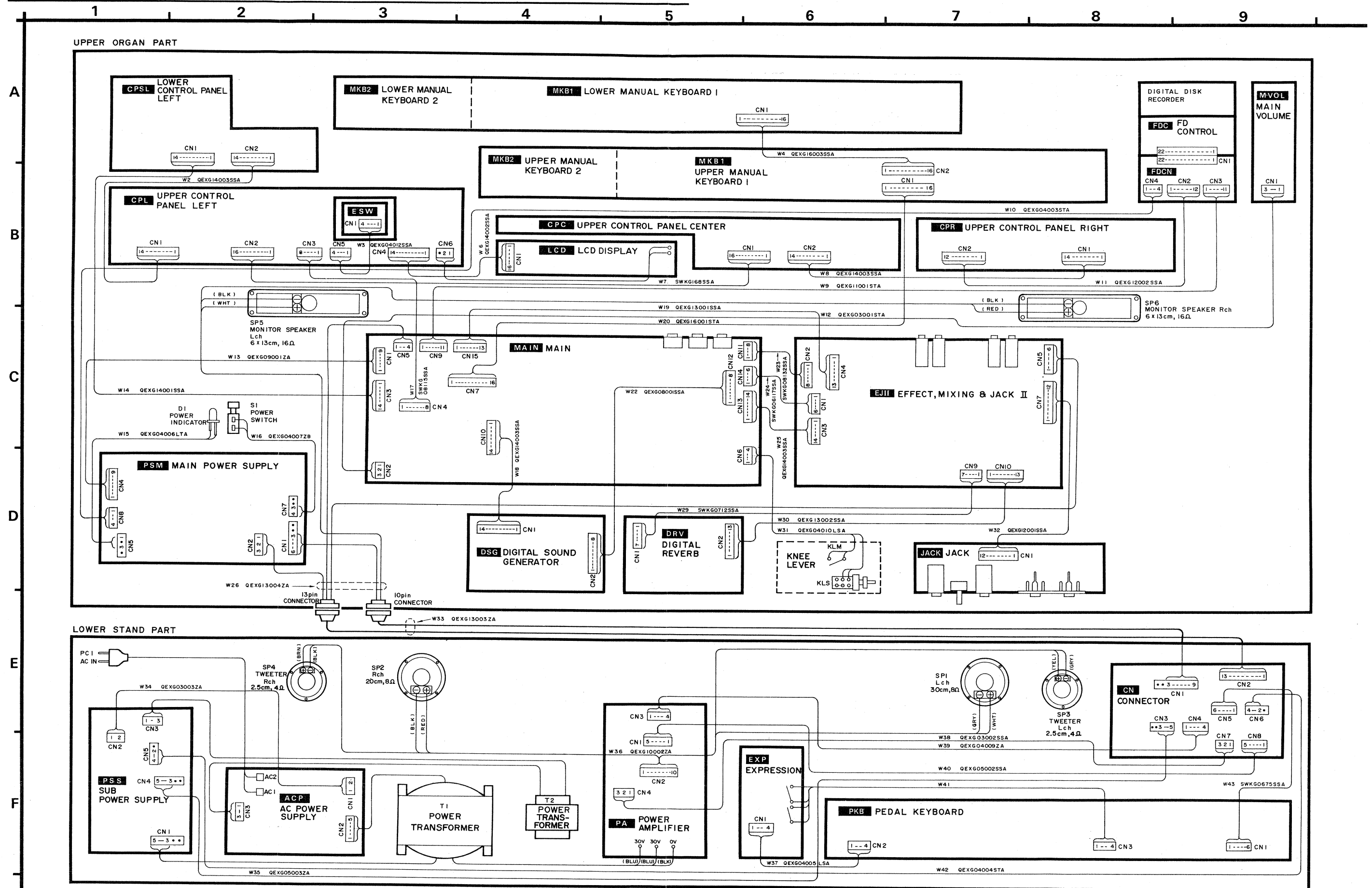
Organ
[SX-GN3(K)/SX-GN5(K)/SX-GN7(K)/SX-GN9(K)] (Recognized)

Function		UPPER POLY	UPPER SPECIAL SOLO (GN3/GN5/ EXTRA (GN7/GN9)	LOWER POLY	LOWER SPECIAL SOLO (GN3/GN5/ EXTRA (GN7/GN9)	ACCOMP 1~3	BASS	DRUMS	CONTROL	Remarks
Basic Channel	Default	1~16	1~16	1~16	1~16	1~16	1~16	1~16	1~16	memorized
	Changed	1~16	1~16	1~16	1~16	1~16	1~16	1~16	1~16	
Mode	Default	3	3	3	3	3	3	3	3	OMNI OFF POLY MODE
	Messages Altered	×	×	×	×	×	×	×	×	
Note Number	True voice	0~127	0~127	0~127	0~127	0~127	0~127	0~127	—	Changes depending on the position of the Octave Shift or Transpose control.
		24~119	24~119	24~119	24~119	24~119	24~95	36~74 (GN3/GN5) 36~83 (GN7/GN9)	—	
Velocity	Note ON	○	○	○	○	○	○	○	—	
	Note OFF	×	×	×	×	×	×	×	—	
After Touch	Key's Ch's	×	×	×	×	×	×	×	×	
		*○× (GN9)	*○× (GN9)	*○× (GN9)	*○× (GN9)	×	×	×	×	
Pitch Bender		*○×	*○×	*○×	*○×	*○×	*○×	×	×	
Control Change	1	*○×	*○×	*○×	*○×	*○×	*○×	×	×	modulation volume main volume expression pedal sustain auto play chord intro, fill in, ending tremolo chorus (effect 2) (GN9) celeste (effect 1)
	7	*○×	*○×	*○×	*○×	*○×	*○×	*○×	*○×	
	11	×	×	×	×	×	×	×	*○×	
	64	*○×	*○×	*○×	*○×	*○×	*○×	×	×	
	80	×	×	*○×	×	×	×	×	×	
	82	×	×	×	×	×	×	*○×	×	
	92	*○×	×	*○×	×	×	×	×	×	
	93	*○×	*○×	*○×	*○×	*○×	*○×	×	×	
	94	*○×	*○×	*○×	*○×	*○×	×	×	×	
Prog Change	True #	*○×	*○×	*○×	*○×	*○×	*○×	*○×	×	(GN3/GN5) (GN7) (GN9)
		0~23/0~7** 0~29/0~7** 0~35/0~15**	0~23 0~29 0~35	0~23 0~29 0~35	0~23 0~29 0~35	0~15 0~19 0~23	0~15 0~23 0~23	0~39 0~39 0~39	— 0~8 0~8	
System exclusive		×								
System Common	Song Pos Song Sel Tune	*○×								0~19
		×								
System Real Time	Clock Commands	○								start/stop/continue
		*○×								
Aux	Local ON/OFF	×	×	×	×	×	×	×	—	
	All notes OFF	○	○	○	○	○	○	○	—	
Messages	Active Sense Reset	○								
		×								
Notes		*○×.....Whether or not the data for each of these items is received can be set. ** VSC Program Change								

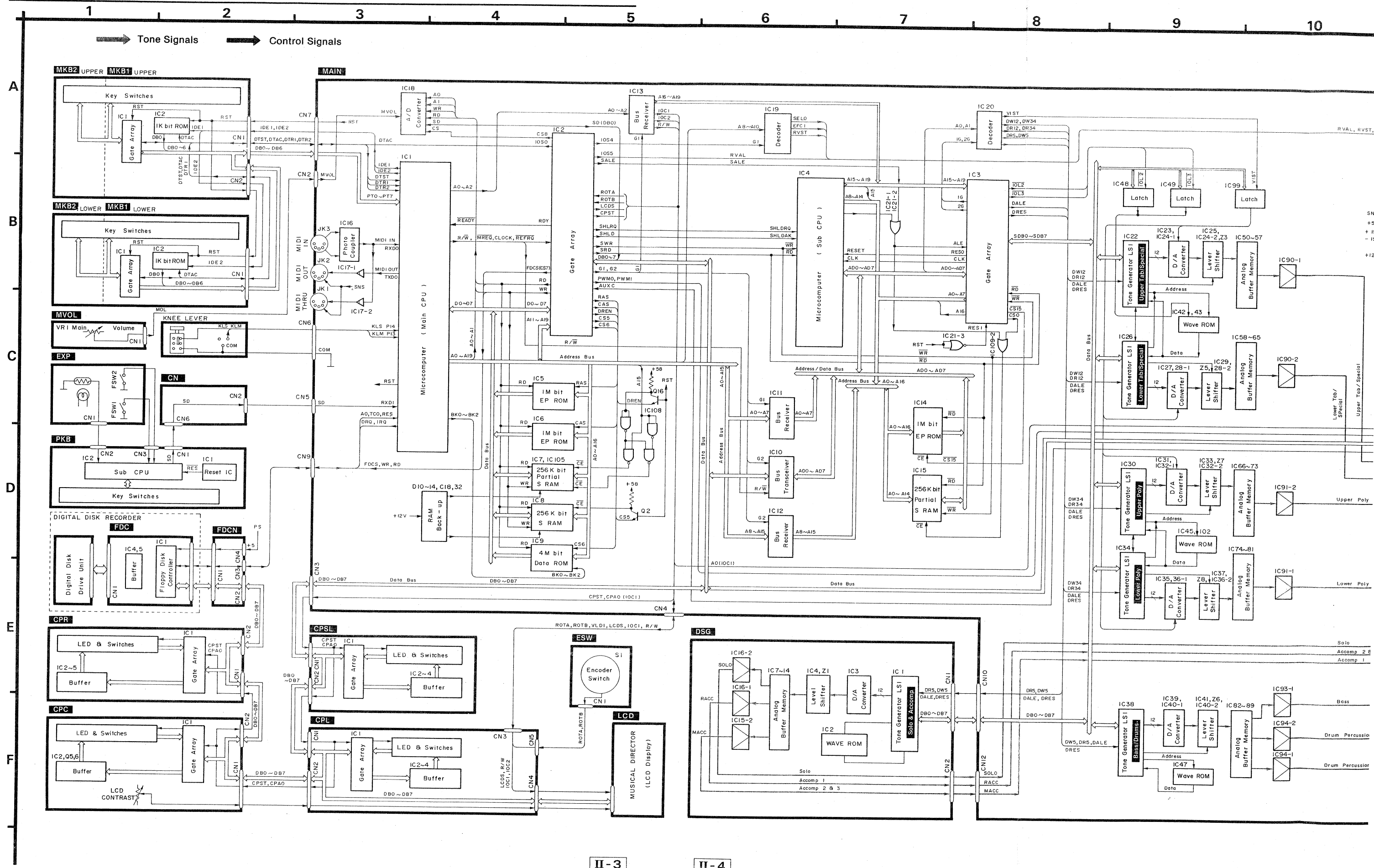
Mode 1: OMNI ON, POLY Mode 2: OMNI ON, MONO ○: Yes
Mode 3: OMNI OFF, POLY Mode 4: OMNI OFF, MONO ×: No

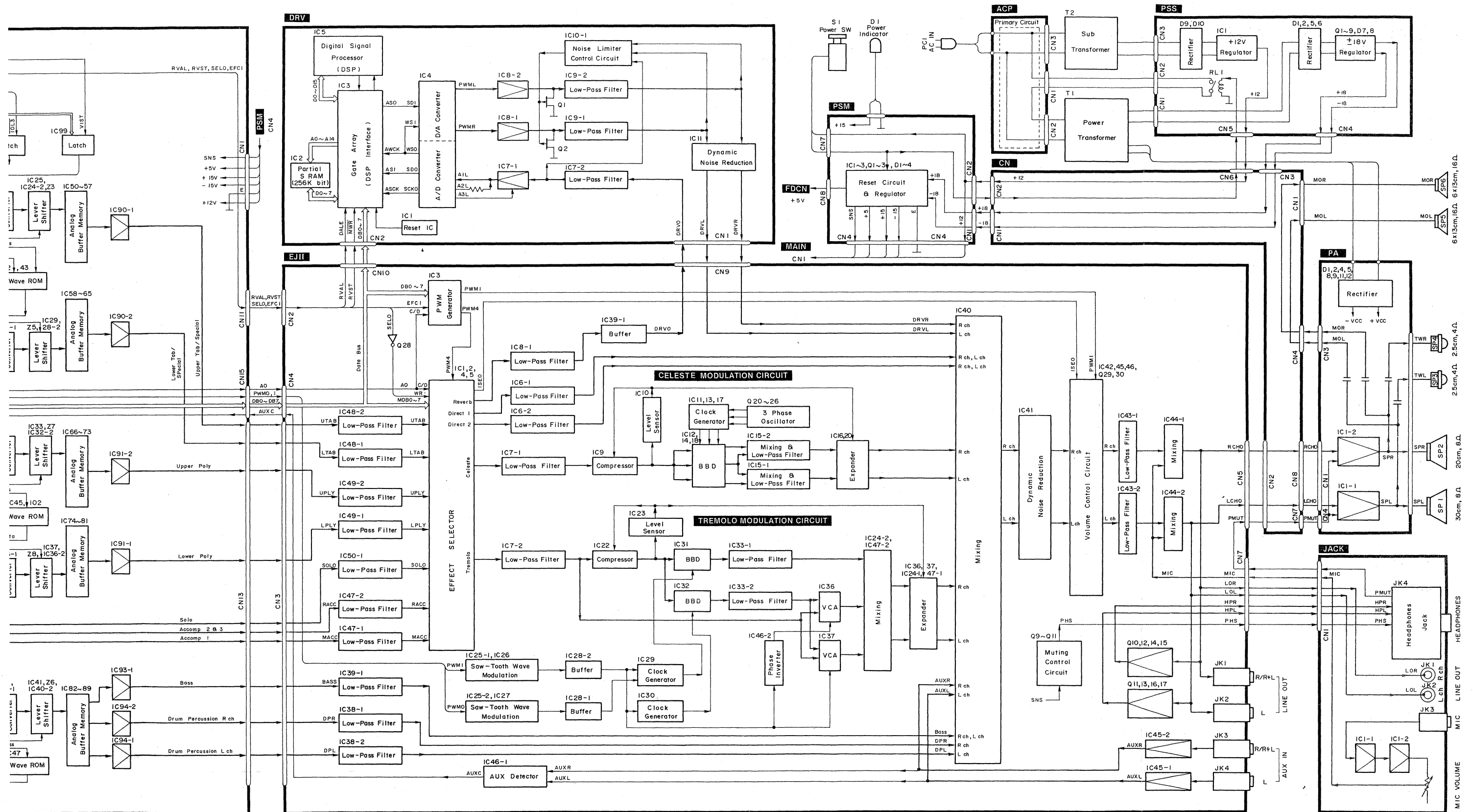
MEMO

WIRING CONNECTION DIAGRAM



BLOCK DIAGRAM

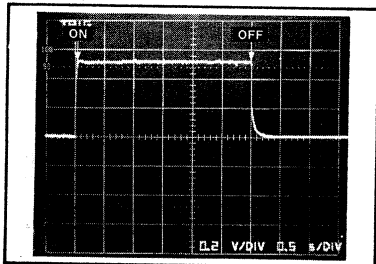




■ Measuring Conditions

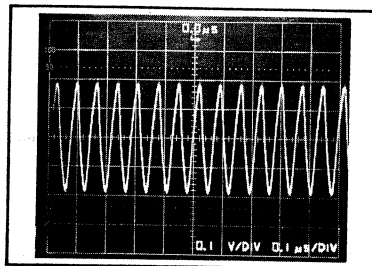
1. Set to the initial mode. (Refer to page I-3)
2. Set the all parts INITIAL TOUCH SENSE function (EFFECT MODE: Page 4) to "0". (Upper=0, Lower=0, Bass=0)
3. Change the unit setting as indicate below the pictures to confirm the waveforms.

1 RESET

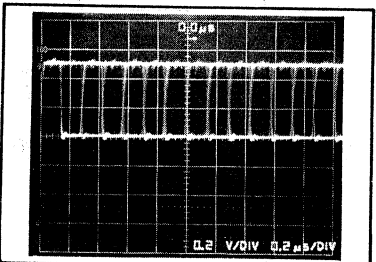


- Power SW ON → OFF

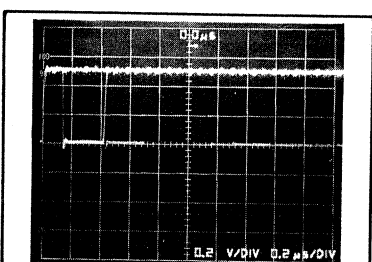
② X1, 14MHz



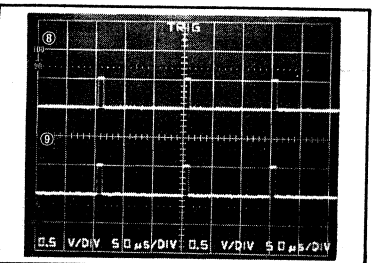
③ $\overline{RD}$



4 WR

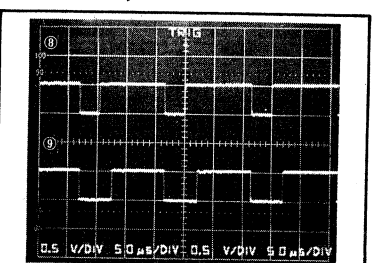


⑧ PWM1, ⑨ PWM0



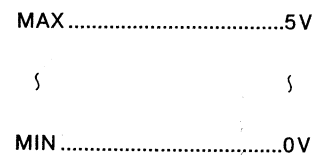
- Tremolo Slow/Fast.....Slow

⑧ PWM1, ⑨ PWM0

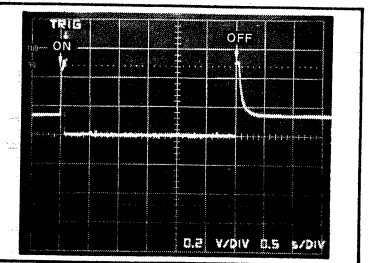


- Tremolo Slow/Fast.....Fast

10 MAIN VOLUME

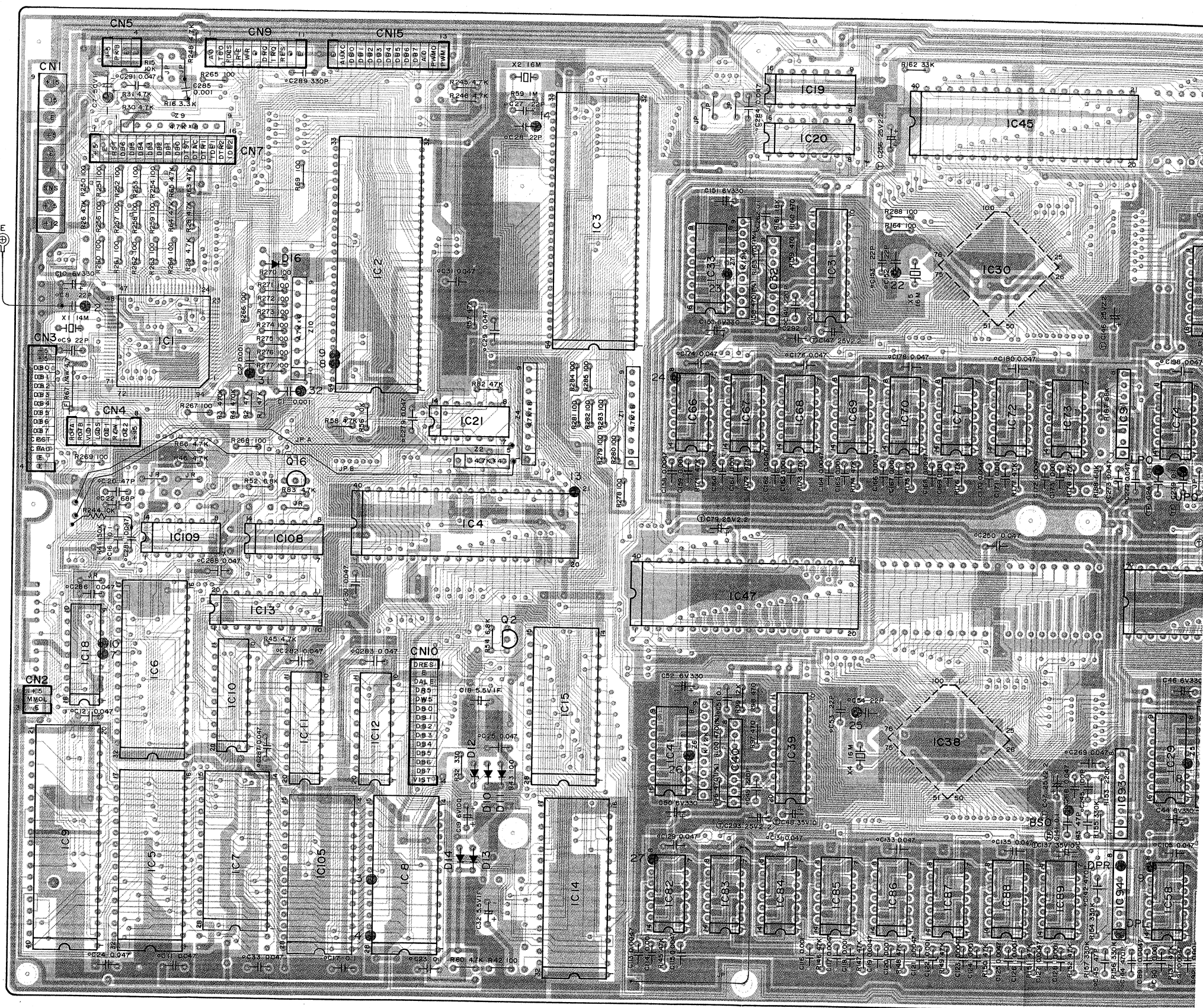


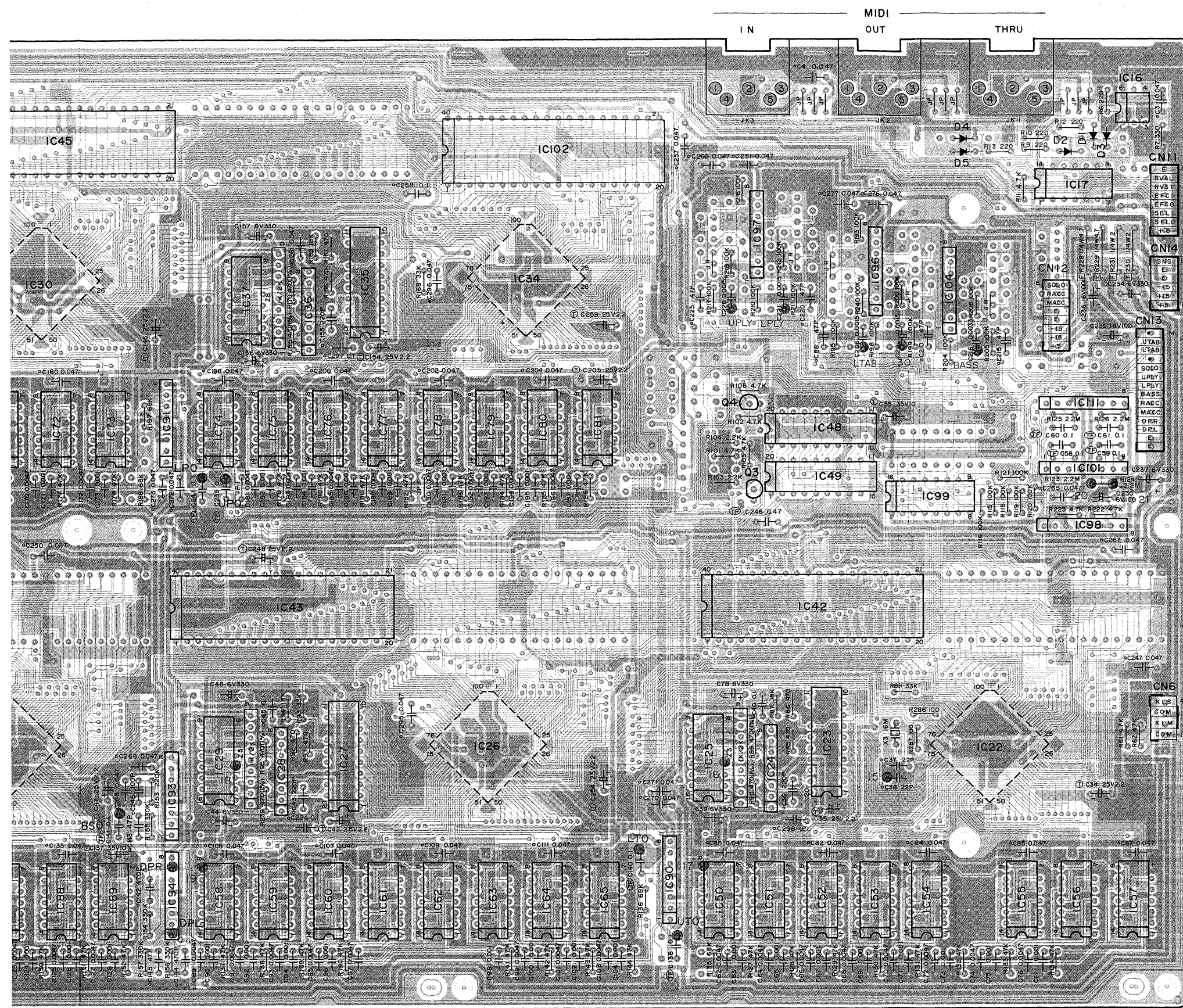
13 RESO.



- Power SW ON → OFF

Circuit view on top of P.C.B.





• [EZ] [M] [MC] [XM] [XL] areas

SXPG200171

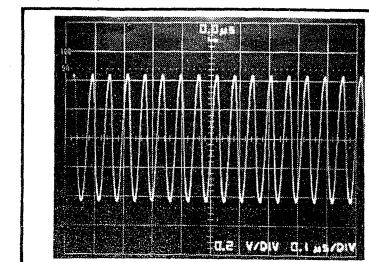
• Other areas

SXPG200131

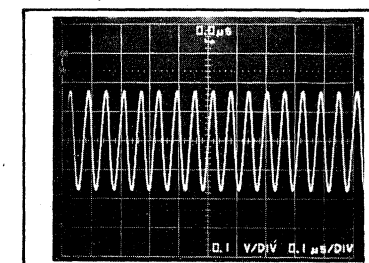
NOTES:

- IC'S
- IC1: SVIGD70320GJ
- IC2: SVIGMB621407
- IC3: SVIGD656C329
- IC4: SVIGLH701088
- IC5: QSIGAGN5BX0
- IC6: QSIGAGN5AX0
- IC7, 15, 105: SVIGHM65256
- IC8: SVIGM5256BLL
- IC9: QSIGU3C04742
- IC10: M74HC245P
- IC11~13: SVIGM74HC244
- IC14: QSIGAGN5CX0
- IC16: SVIGTLP513
- IC17: SVIGM74LS07
- IC18: SVIGMSM6253
- IC19: SVIGM74H138
- IC20: M74HC139P
- IC21: SVIGM74H02
- IC22, 26, 30, 34, 38: MN6635
- IC23, 27, 31, 35, 39: SVIGBA9221
- IC24, 28, 32, 36, 40: SVIGM5238L
- IC25, 29, 33, 37, 41: SVIGTC4051BP
- IC42: QSIGU3C04739
- IC43: QSIGU3C04738
- IC45: QSIGU3C04724
- IC47: QSIGU3C04730
- IC48, 49: SVIGM74HC374
- IC50~89: SVIGM74H4066
- IC90, 91, 93, 94, 96~98, 101, 104, 111: SVIGM5218L
- IC99: M74HC174P
- IC102: QSIGU3C04725
- IC108: SVIGM74H00
- IC109: SVIGM74H32
- TRANSISTORS
- Q2~4, 16: 2SC1047C
- DIODES
- D1~5, 10, 11: MA165TA5
- 13, 14, 16: MA4056
- D12: MA4056

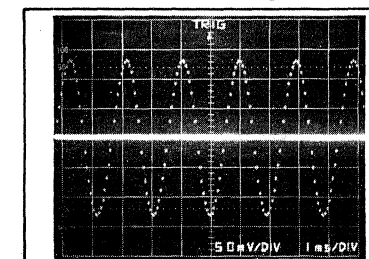
14 X2, 16 MHz



15 X3, 16 MHz

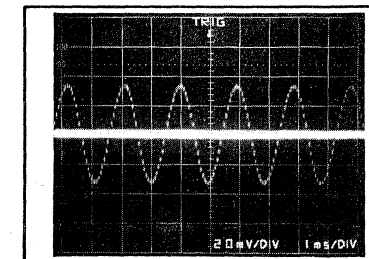


16 Upper Tab & Organ



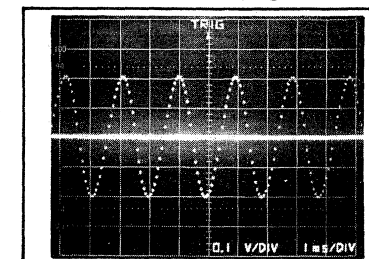
- Upper Tab & Organ Flute 8'
- Upper Keyboard.....C4 Key

17 Upper Tab & Organ



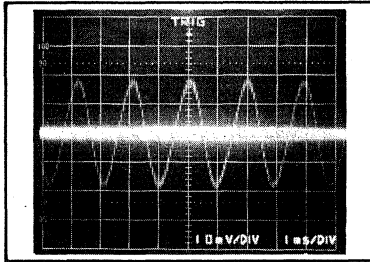
- Upper Tab & Organ Flute 8'
- Upper Keyboard.....C4 Key

18 Lower Tab & Organ



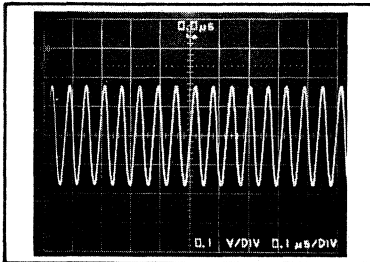
- Lower Tab & Organ Flute 8'
- Lower Keyboard C4 Key

19 Lower Tab & Organ

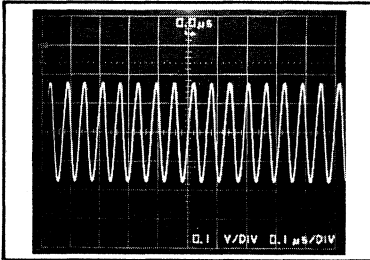


- Lower Tab & Organ.....Flute 8'
- Lower Keyboard C4 Key

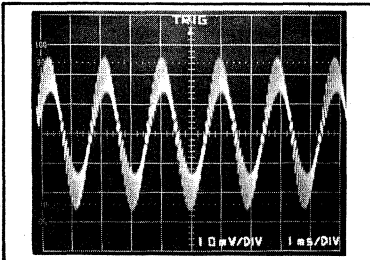
22 X5, 16 MHz



25 X4, 16 MHz

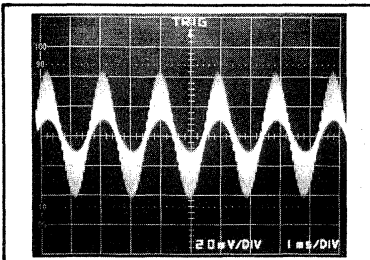


30 UTAB



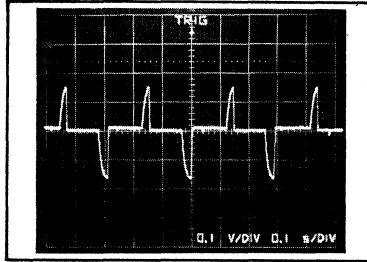
- Upper Tab & Organ Flute 8'
- Upper Keyboard.....C4 Key

UTO



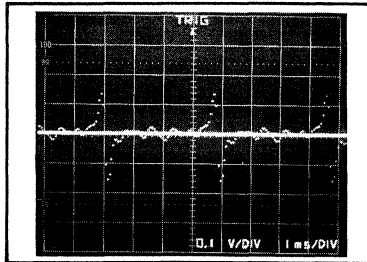
- Upper Tab & Organ Flute 8'
- Upper Keyboard.....C4 Key

20



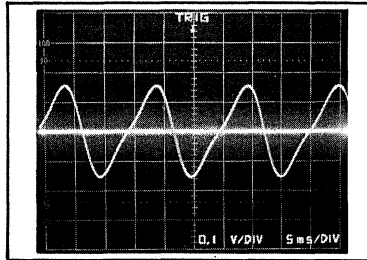
- Lower Special Mallet (Vibraphone)

23 Upper Poly



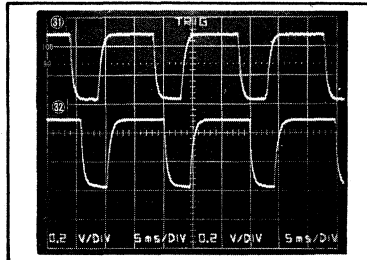
- Upper Poly.....Trumpet
- Upper Keyboard.....C4 Key

26 Bass



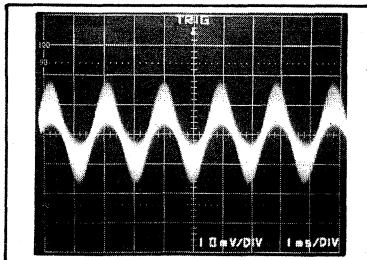
- Bass Organ
- Pedal Keyboard C2 Key

31 ROTA, 32 ROTB



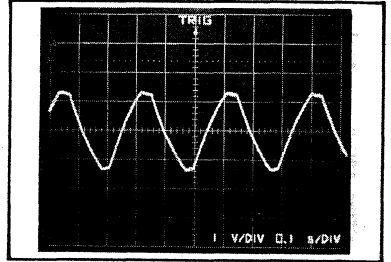
- Tempo/Program.....Clockwise

LTO



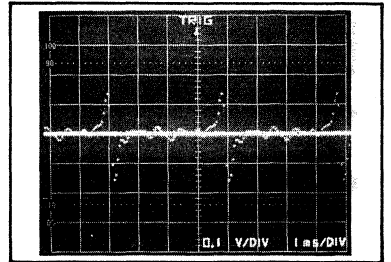
- Lower Tab & Organ.....Flute 8'
- Lower Keyboard C4 Key

21



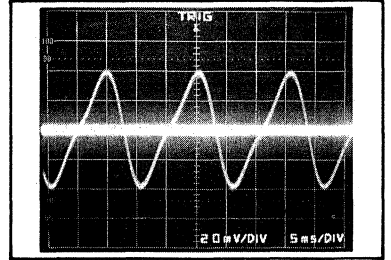
- Lower Special Mallet (Vibraphone)

24 Upper Poly



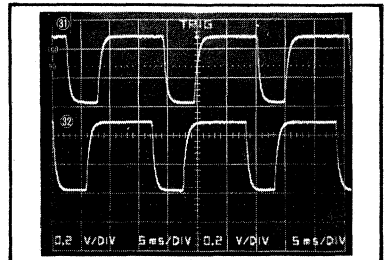
- Upper Poly.....Trumpet
- Upper Keyboard.....C4 Key

27 Bass



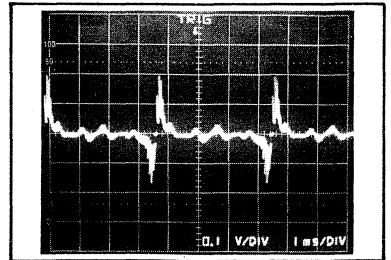
- Bass Organ
- Pedal Keyboard C2 Key

31 ROTA, 32 ROTB



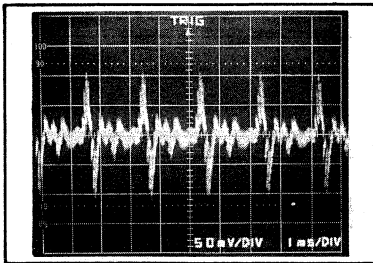
- Tempo/Program.....Counter-clockwise

UPO



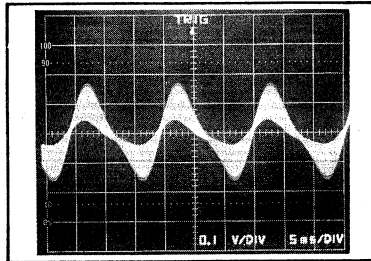
- Upper Poly.....Trumpet
- Upper Keyboard.....C4 Key

LPO



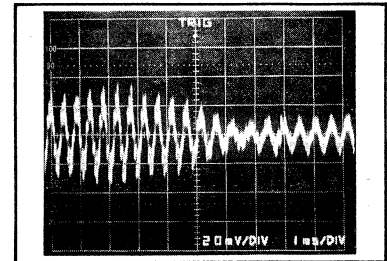
- Lower Poly Trumpet
- Lower Keyboard C4 Key

BSO



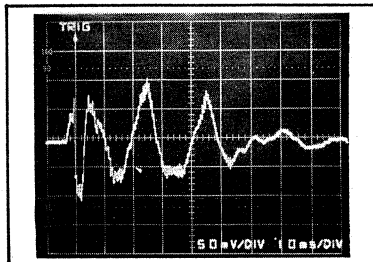
- Bass Organ
- Pedal Keyboard C2 Key

DPR



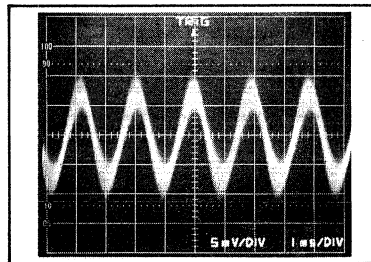
- Keyboard Perc. ON
- Lower Keyboard Whistle 1

DPL



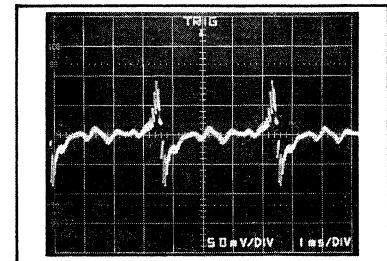
- Keyboard Perc. ON
- Lower Keyboard Bass Drum 1

LTAB



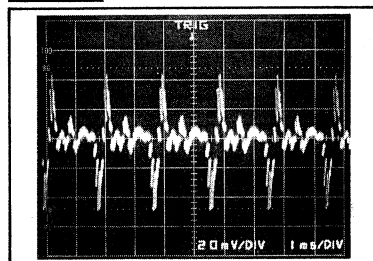
- Lower Tab & Organ Flute 8'
- Lower Keyboard C4 Key

UPLY



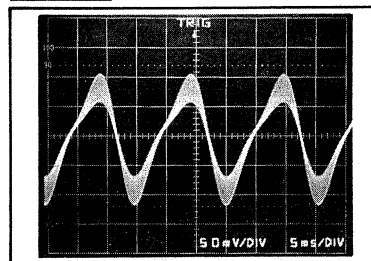
- Upper Poly Trumpet
- Upper Keyboard C4 Key

LPLY

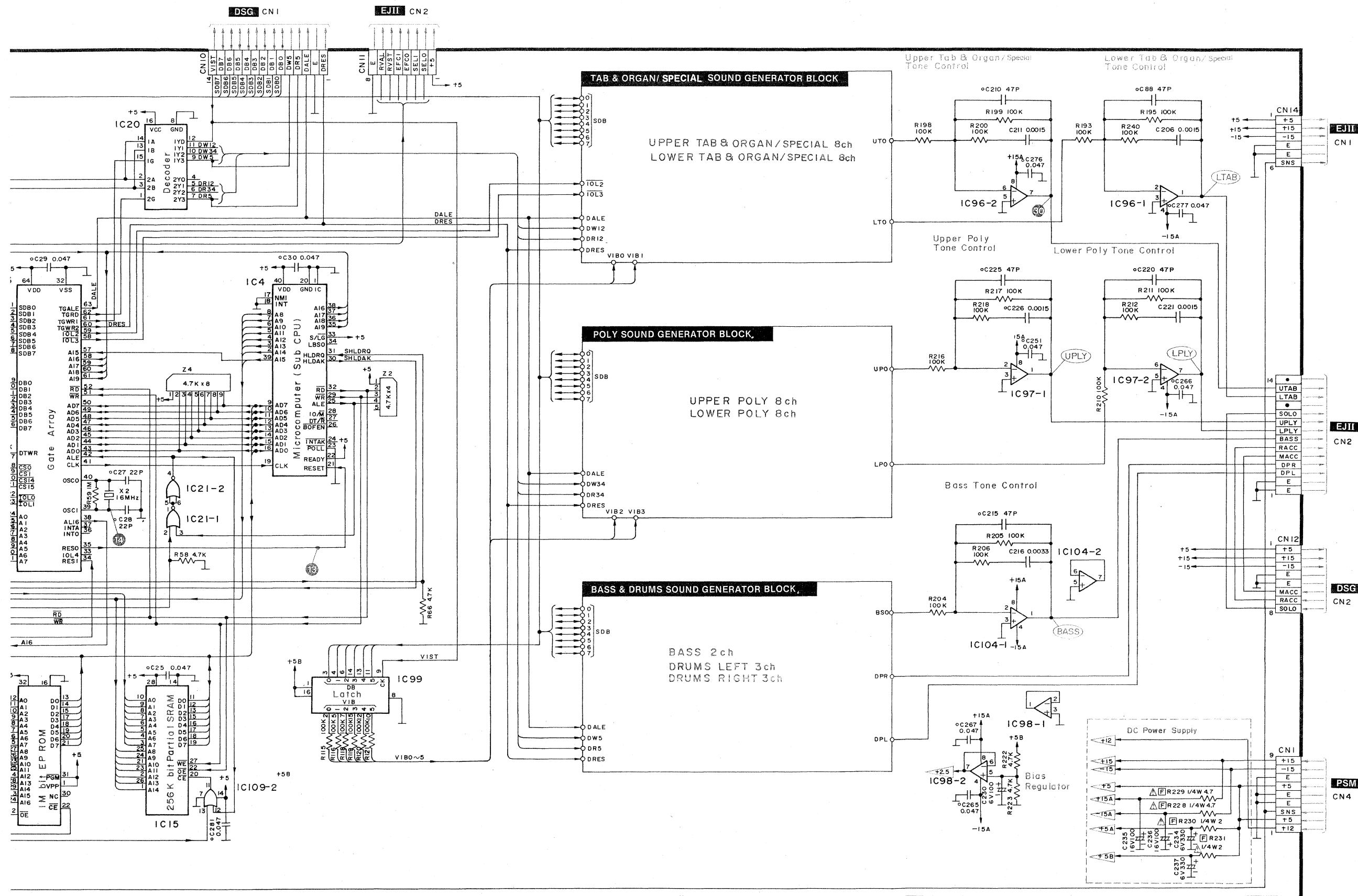


- Lower Poly Trumpet
- Lower Keyboard C4 Key

BASS

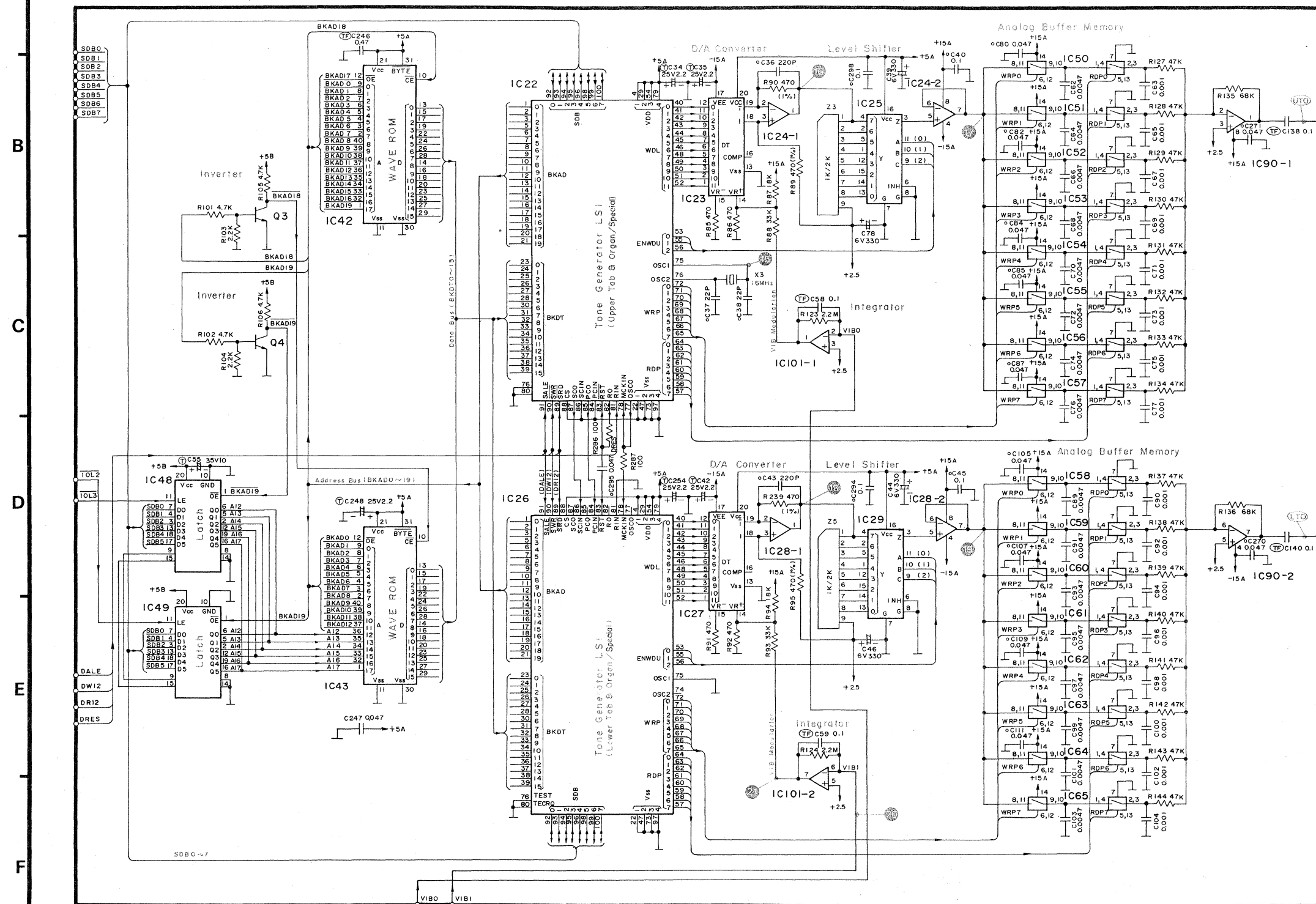


- Bass Organ
- Pedal Key C2 Key

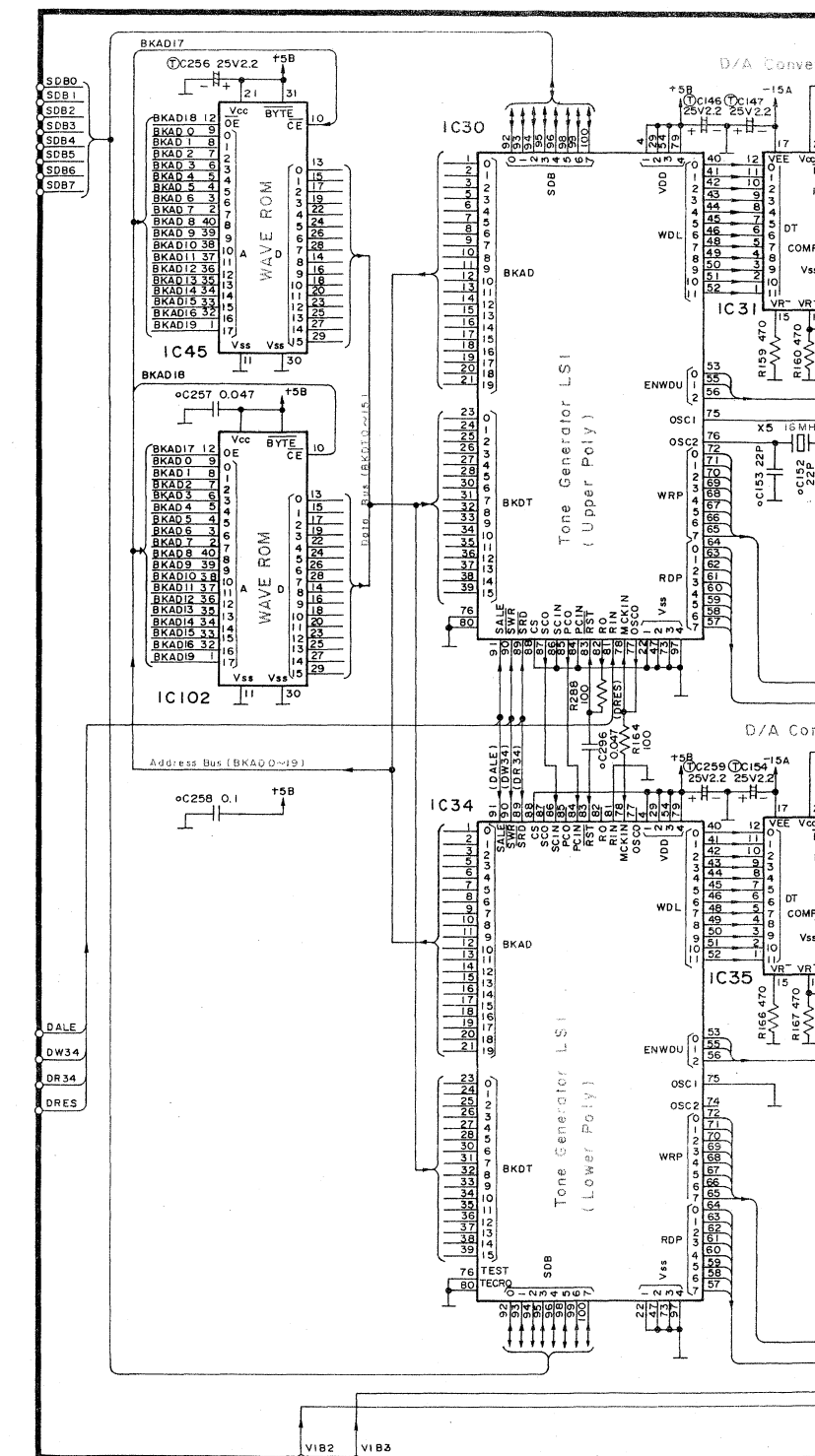


MAIN CIRCUIT SOUND GENERATORS

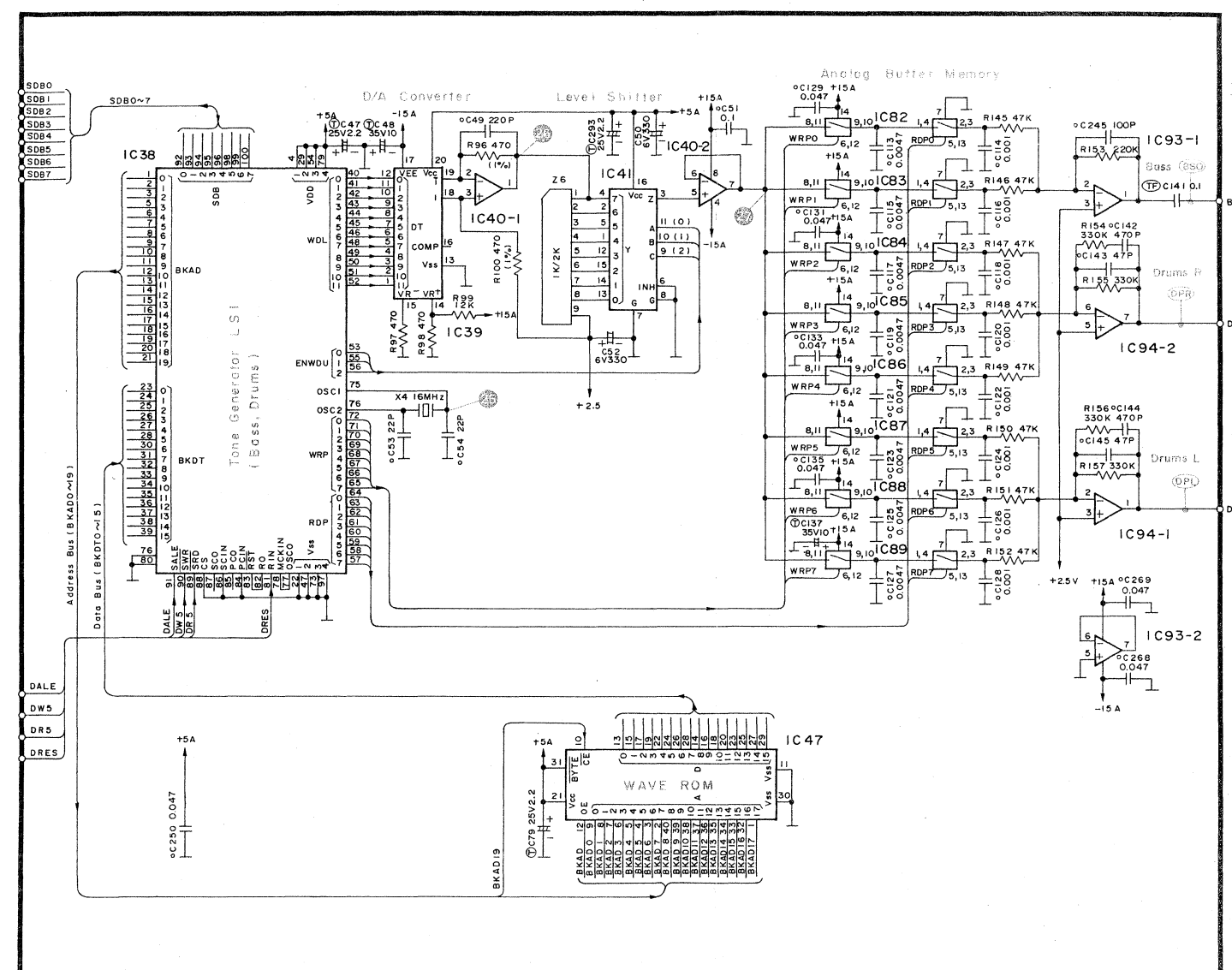
■ TAB & ORGAN / EXTRA SOUND GENERATOR BLOCK



■ POLY SOUND GENERATOR BLOCK



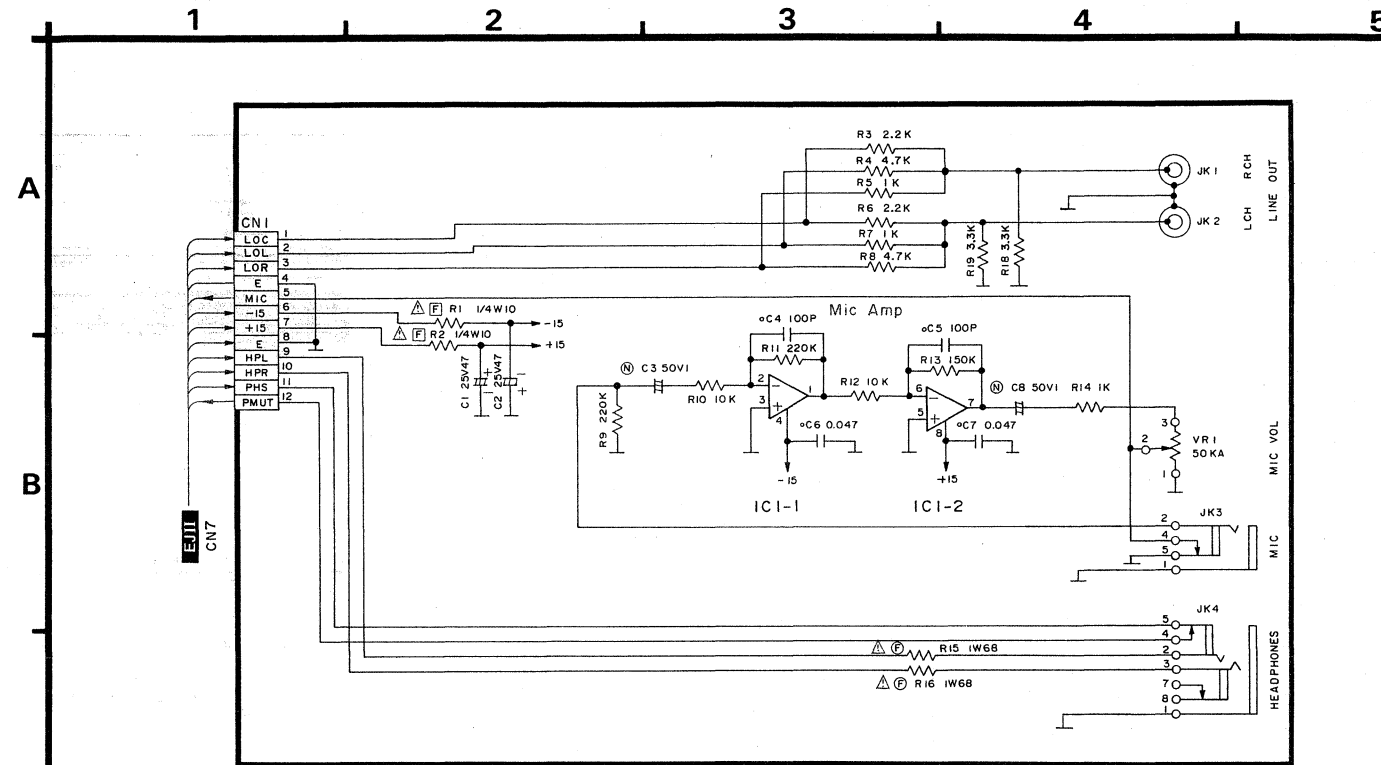
■ BASS & DRUMS SOUND GENERATOR BLOCK



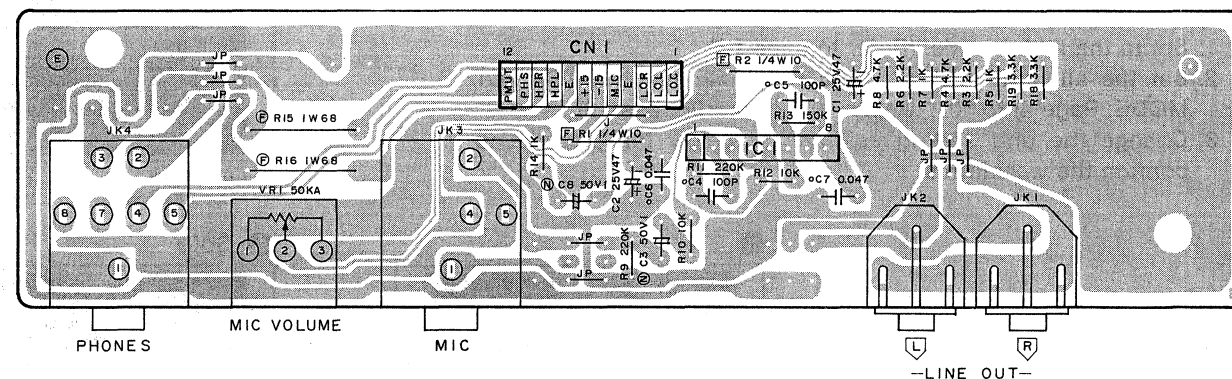
IC50~89:	SVIGM74H4066
IC90, 91, 93, 94, 96~98, 101, 104, 111:	SVIGM5218L
IC99:	M74HC174P
IC102:	QSIGU3C04725
IC108:	SVIGM74H00
IC109:	SVIGM74H32
• TRANSISTORS	
Q2~4, 16:	2SC1047C
• DIODES	
D1~5, 10, 11, 13, 14, 16:	MA165TA5
D12:	MA4056

JACK

JACK CIRCUIT DIAGRAM & CIRCUIT BOARD



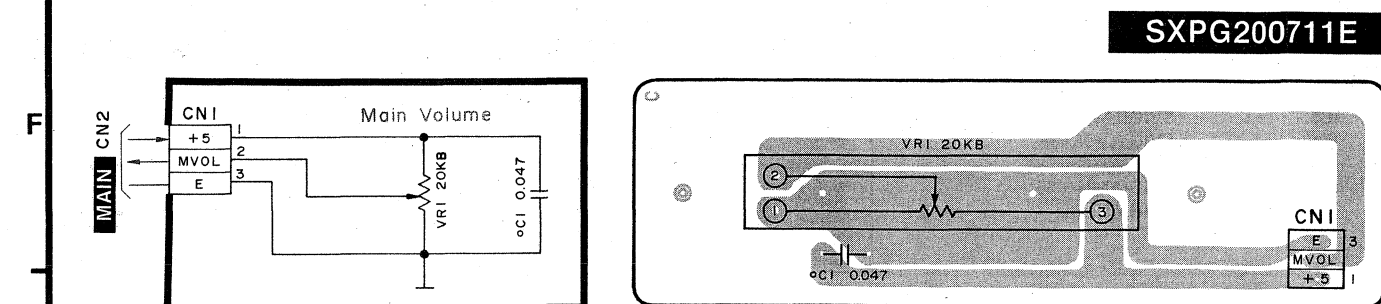
SXPG201411



NOTES:
• IC SVIGM5218L

MVOL

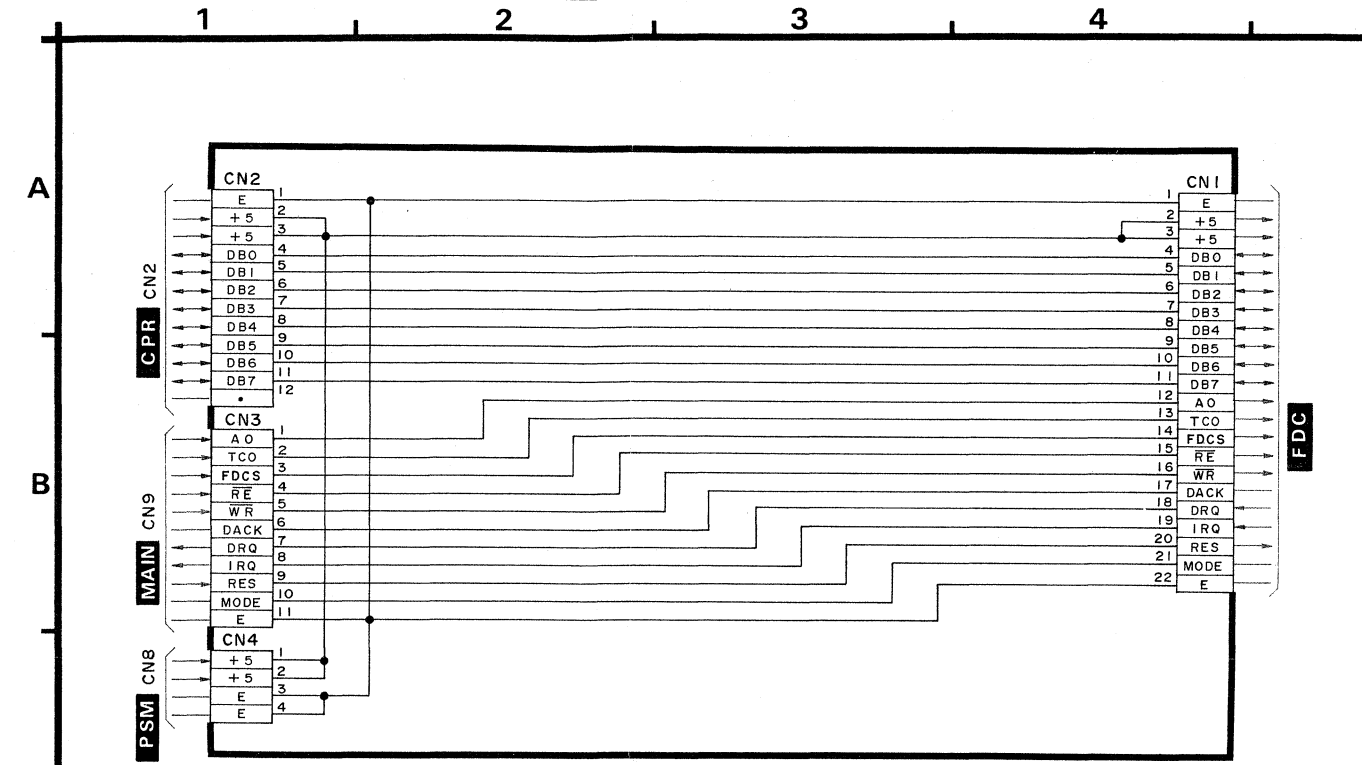
MAIN VOLUME CIRCUIT



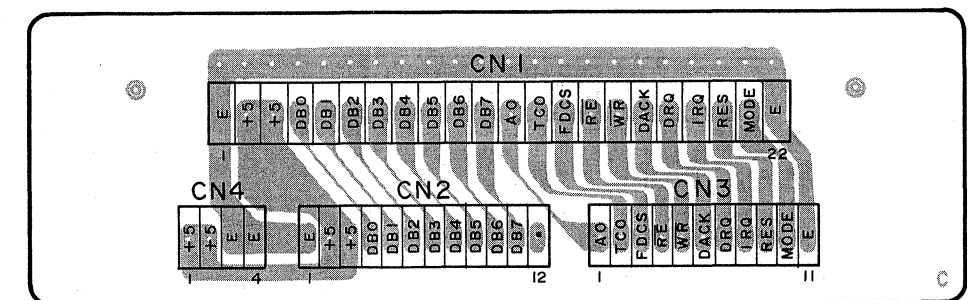
SXPG200711E

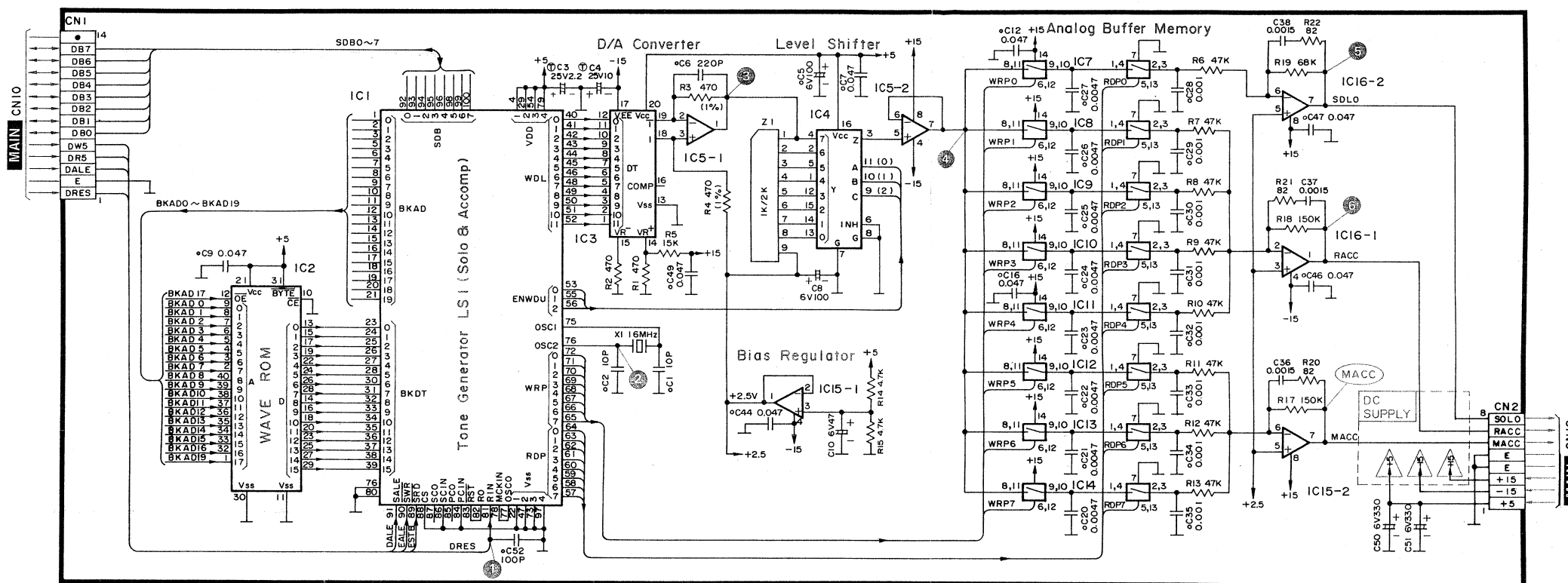
FDCN

FD CONNECTOR CIRCUIT

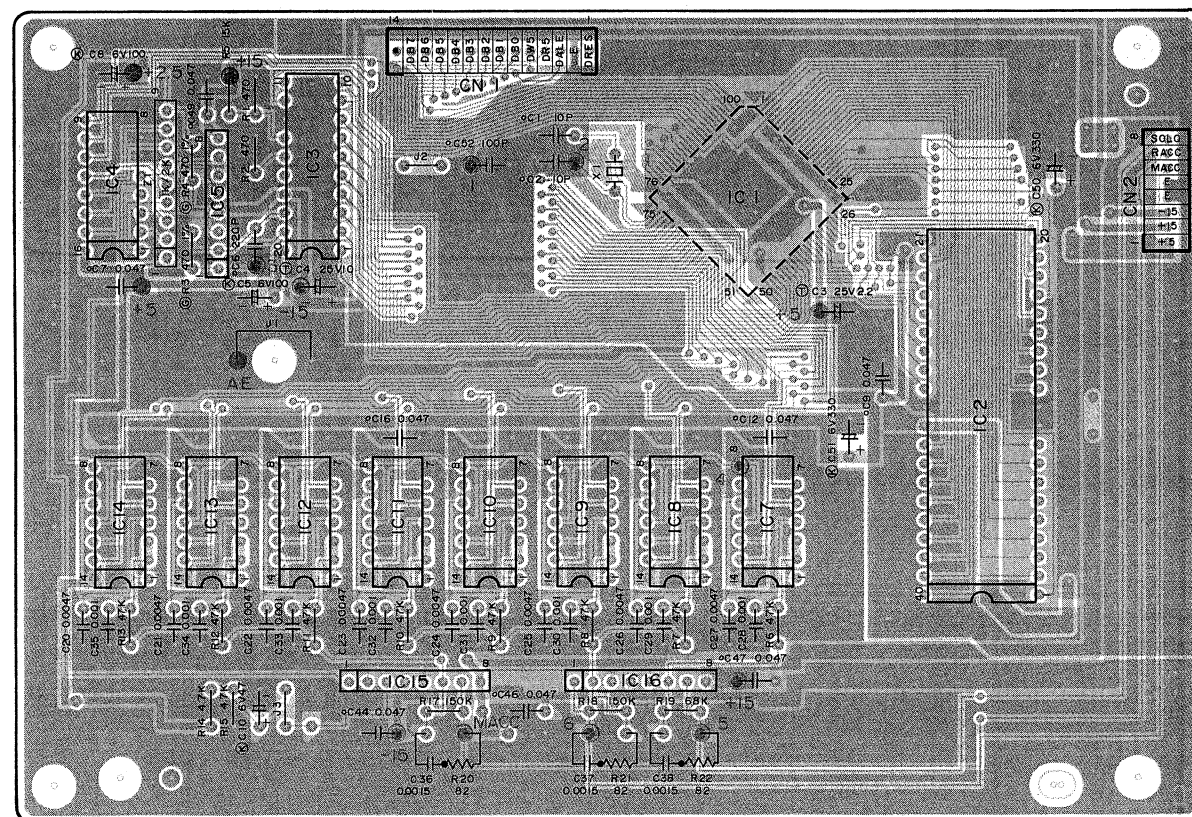


SXPG200711D





Circuit view on top of P.C.B.



SXPG201711

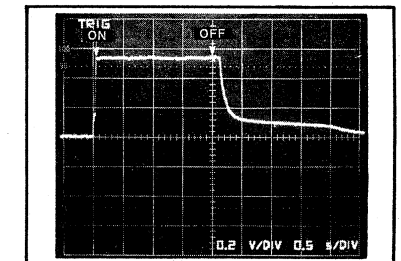
Measuring Conditions

1. Set to the initial mode. (Refer to page I-3)
2. Set the all parts INITIAL TOUCH SENSE function (EFFECT MODE: Page 4) to "0". (Upper=0, Lower=0, Bass=0)
3. Change the unit setting as indicate below the pictures to confirm the waveforms.

NOTES:

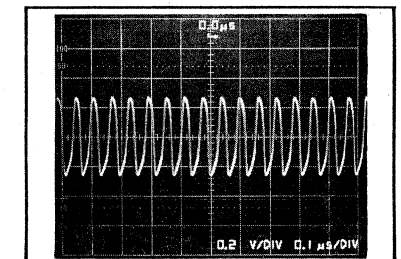
- IC'S
- IC1: MN6635
- IC2: QSIGU3C04732
- IC3: SVIGBA9221
- IC4: SVIGTC4051BP
- IC5: SVIGM5238L
- IC7~14: SVIGM74H4066
- IC15, 16: SVIGM5218L

1 DRES

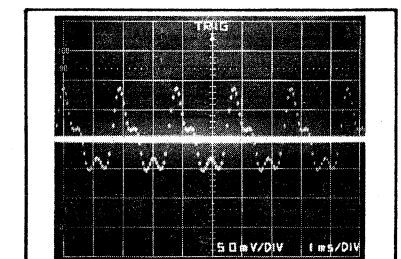


• Power ON→OFF

2 X1, 16MHz

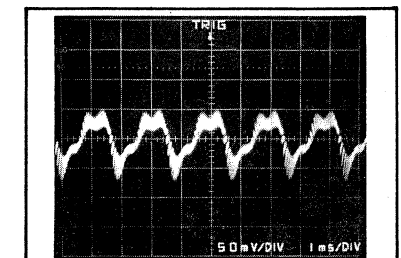


3



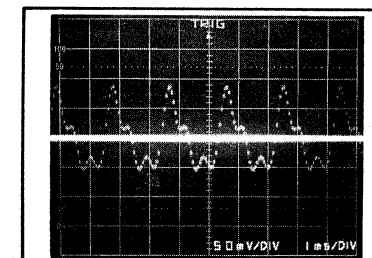
• Upper Solo Flute
• Upper Keyboard.....C4 Key

5 Solo



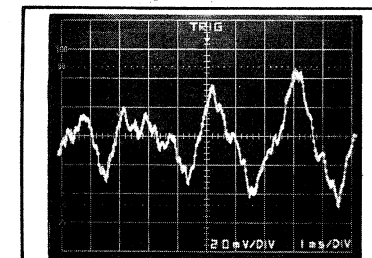
• Upper Solo Flute
• Upper Keyboard.....C4 Key

4



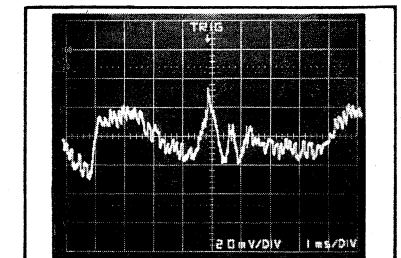
• Upper Solo Flute
• Upper Keyboard.....C4 Key

6 Accomp 1

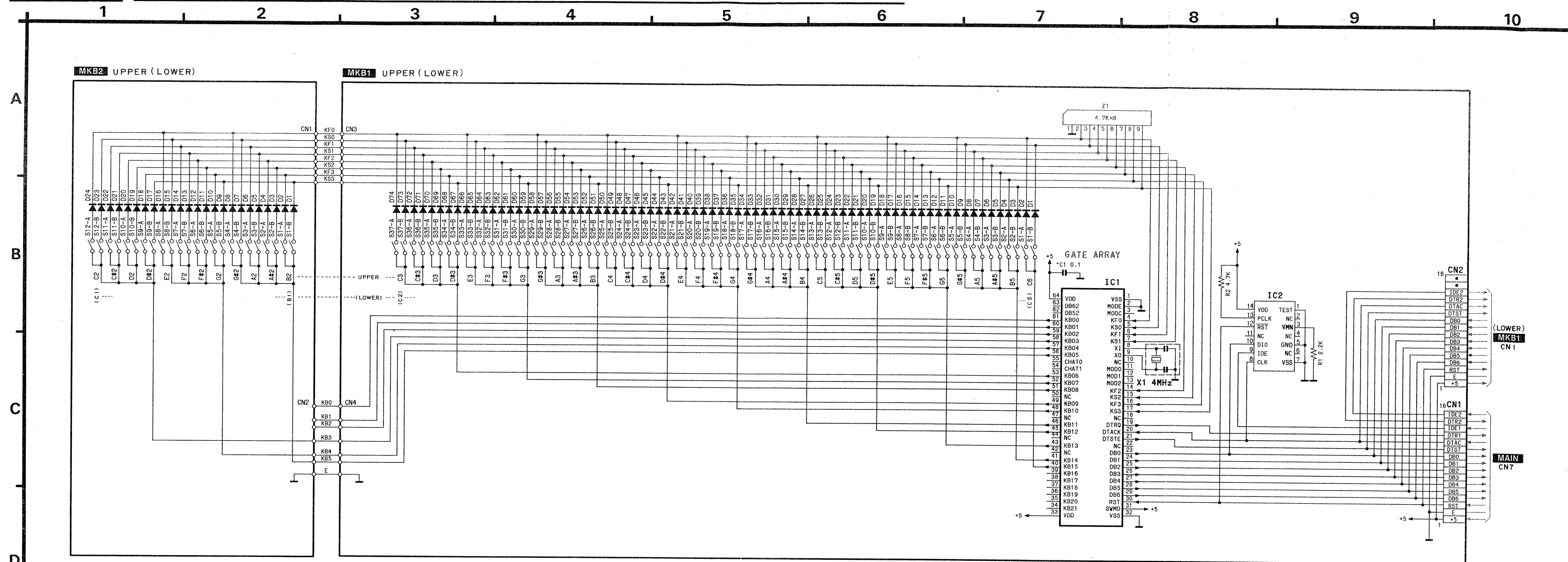


• Rhythm Hard Rock
• Arranger.....Accomp 1
• LKB...C Key • Start/Stop...Start

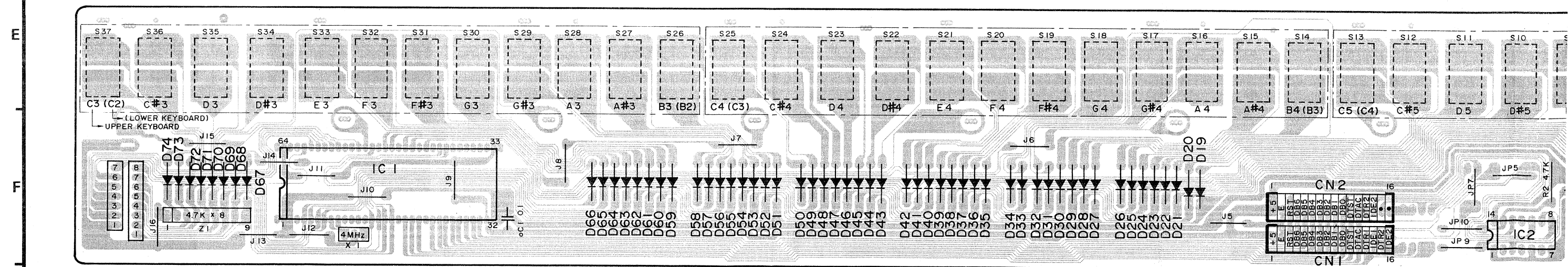
MACC Accomp 2 & 3

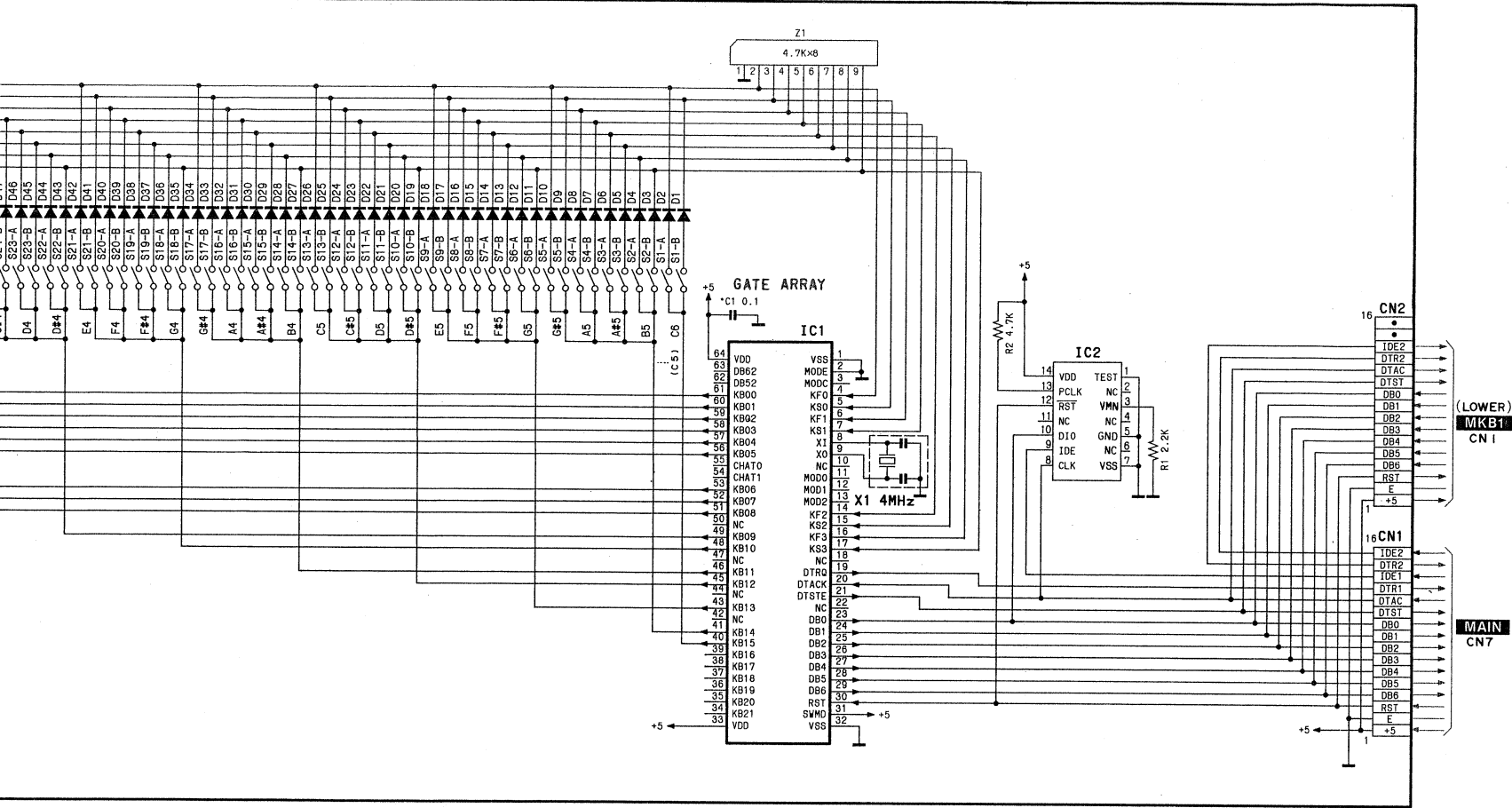


• Rhythm Hard Rock
• Arranger.....Accomp 2 & 3
• LKB...C Key • Start/Stop...Start



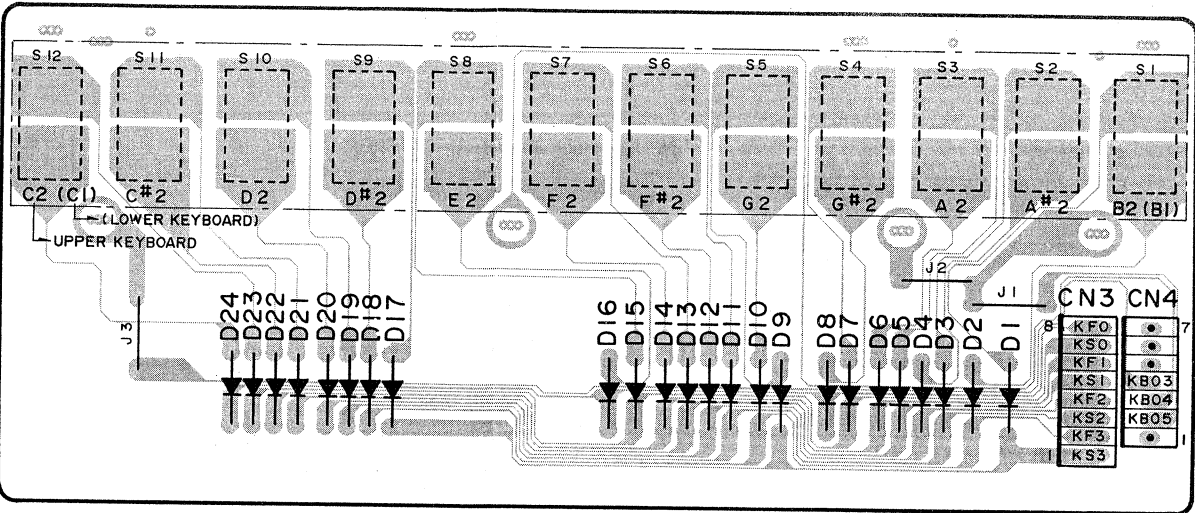
MKB1





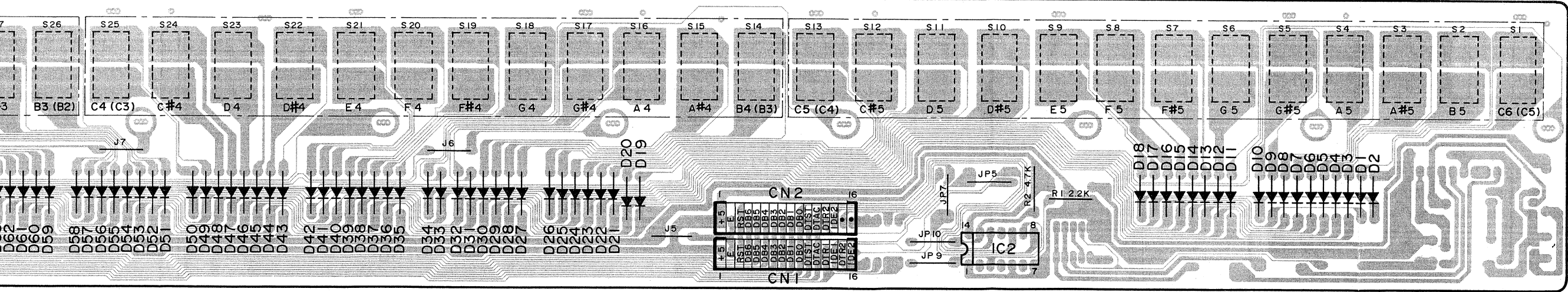
MKB2

SXPG201011



MKB2
NOTES:
• DIODES
D1~24: MA162A

SXPG200921

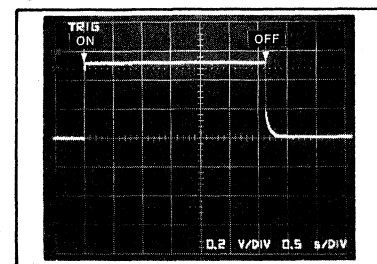


MKB1
NOTES:
• IC'S
IC1: MN50020PGV
IC2: MN1231
• DIODES
D1~74: MA162A

Measuring Conditions

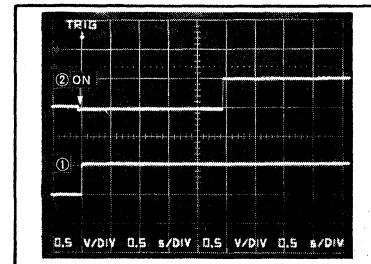
1. Set to the initial mode. (Refer to page I-3)
2. Set the all parts INITIAL TOUCH SENSE function (EFFECT MODE: Page 4) to "0". (Upper=0, Lower=0, Bass=0)
3. Change the unit setting as indicate below the pictures to confirm the waveforms.

① SNS



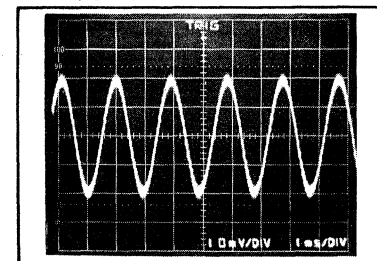
• Power SW ON→OFF

② Muting Control, ① SNS



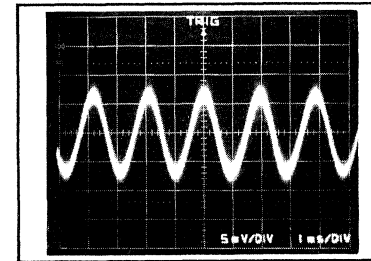
• Power SW ON

③ Upper Tab



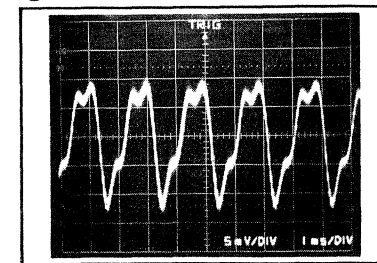
• Upper Tab Flute 8'
• Upper Keyboard C4 Key

④ Lower Tab



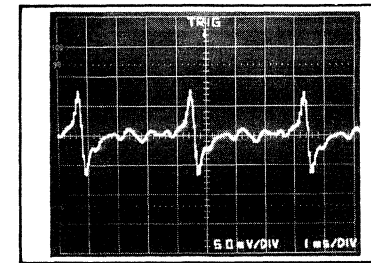
• Lower Tab Flute 8'
• Lower Keyboard C4 Key

⑤ Solo



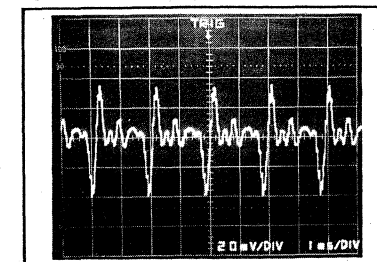
• Upper Solo Flute
• Upper Keyboard C4 Key

⑥ Upper Poly



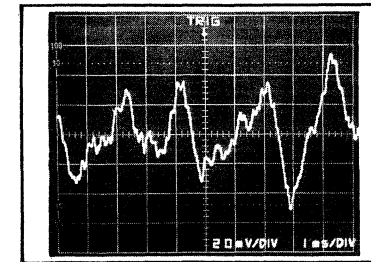
• Upper Poly Trumpet
• Upper Keyboard C4 Key

⑦ Lower Poly



• Lower Poly Trumpet
• Lower Keyboard C4 Key

⑧ Accomp 1



• Rhythm Hard Rock
• Arranger Accomp 1
• LKB...C Key • Start/Stop...Start

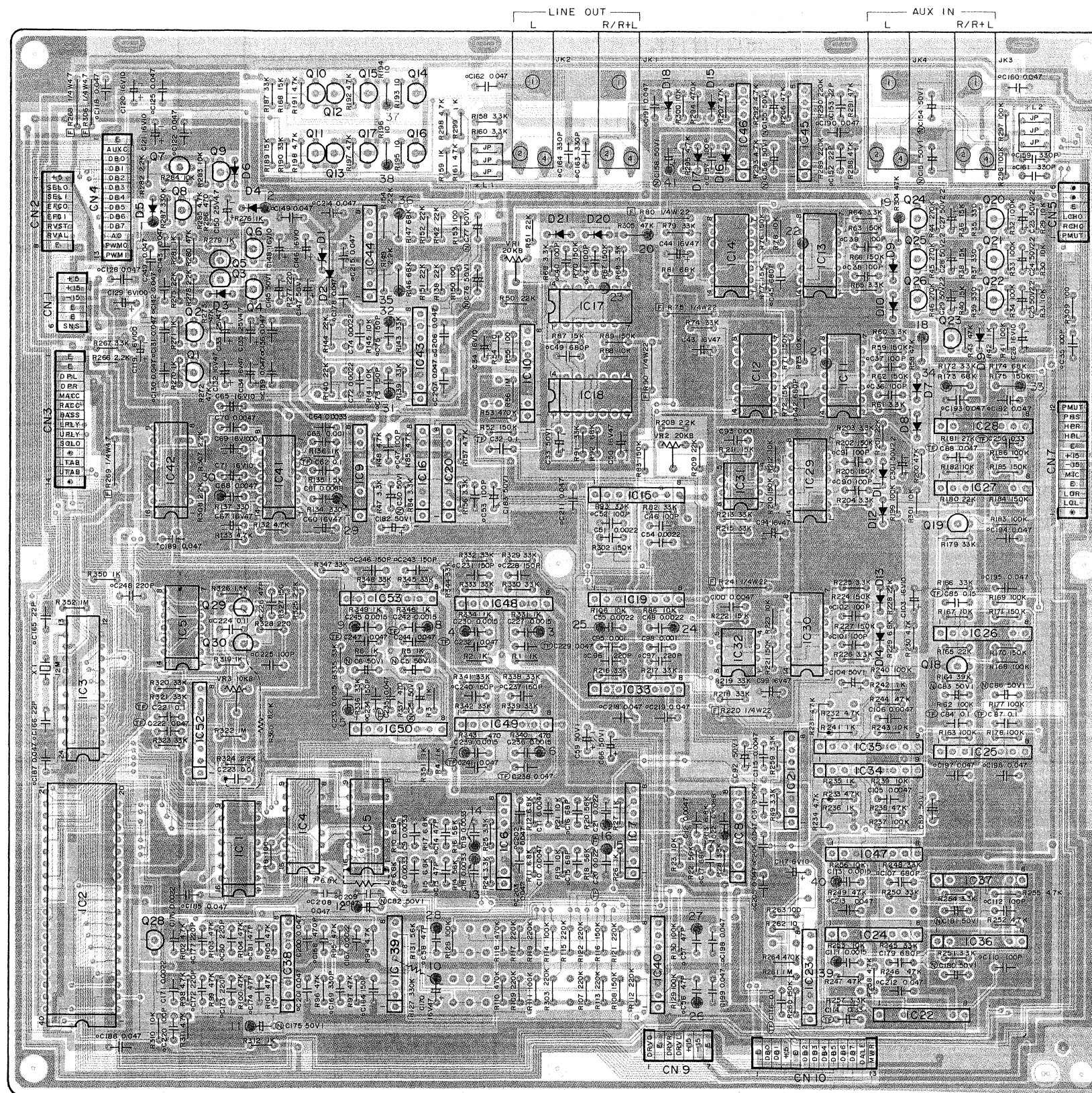
Circuit view on top of P.C.B.

• [EZ] [M] [MC] [XM] [XL] areas

SXPG200431

• Other areas

SXPG200411



⑨ Acco



• Rhythm
• Arrange
• LKB...C

⑩ Drum



• Keyboard
• Lower K

NOTES:

- IC'S
- IC1:
- IC2:
- IC3:
- IC4, 5, 42:
- IC6~8, 15:
- 24~28,
- 38~40,
- 52, 53:
- IC9, 16, 2C
- 37:
- IC10, 23:
- IC11, 13,
- 30:
- IC12, 14,
- IC31, 32:
- IC34, 35:
- IC41:
- IC51:
- TRANSIS
- Q1, 3, 4, 7
- 13, 20~
- 30:
- Q2, 5, 6, 9
- 29:
- Q14, 16:
- Q15, 17:
- Q18, 19:
- DIODES
- D1:
- D2:
- D3~21:

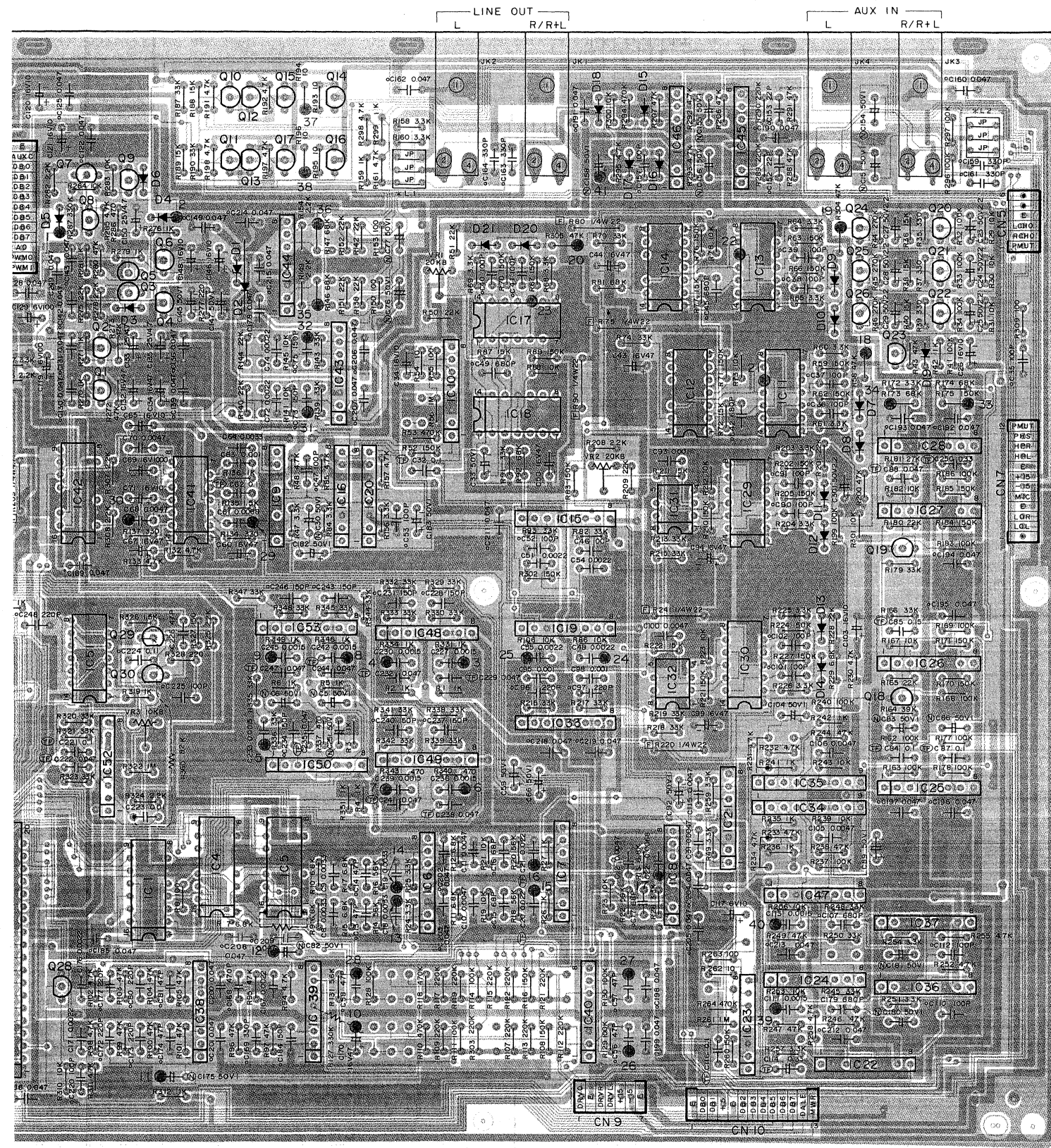
Unit view on top of P.C.B.

• [EZ] [M] [MC] [XM] [XL] areas

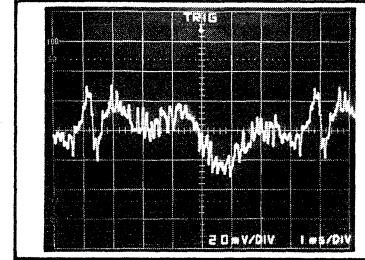
SXPG200431

• Other areas

SXPG200411

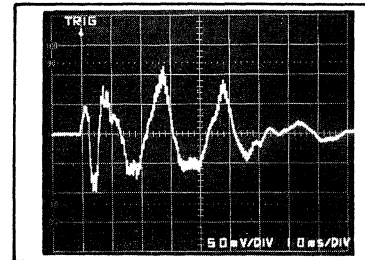


9 Accomp 2 & 3



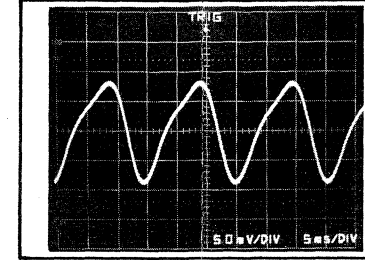
- Rhythm Hard Rock
- Arranger.....Accomp 2 & 3
- LKB...C Key • Start/Stop...Start

12 Drum Percussion (L ch)



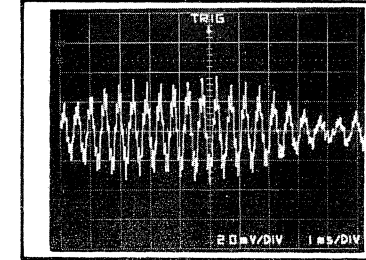
- Keyboard Percussion ON
- Lower Keyboard Bass Drum 1

10 Bass



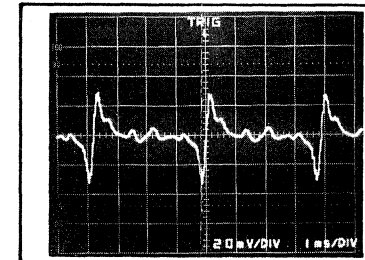
- Bass Organ
- Pedal Keyboard C2 Key

11 Drum Percussion (Rch)



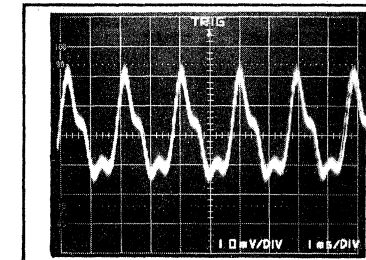
- Keyboard Perc. ON
- Lower Keyboard Whistle 1

13



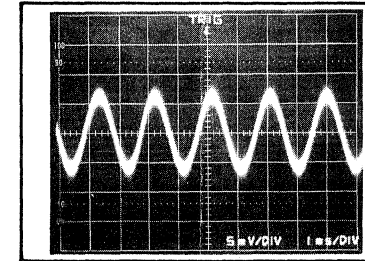
- Upper Poly.....Trumpet
- Upper Keyboard.....C4 Key

14



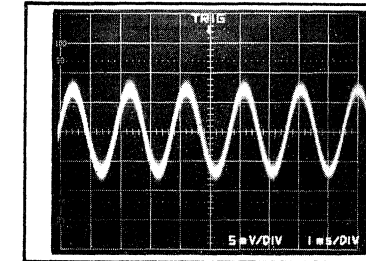
- Upper Solo Flute
- Upper Keyboard.....C4 Key

15



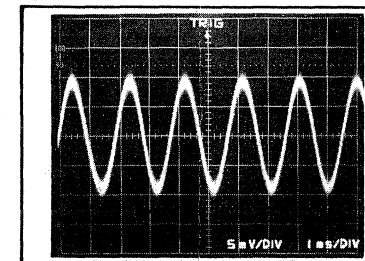
- Upper Tab.....Flute 8'
- Celeste.....ON
- Upper Keyboard.....C4 Key

16



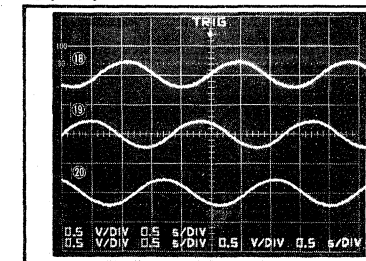
- Upper Tab.....Flute 8'
- Tremolo ON
- Upper Keyboard.....C4 Key

17



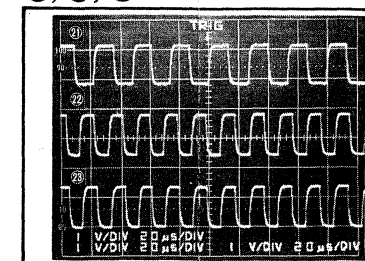
- Upper Tab.....Flute 8'
- Reverb.....ON
- Upper Keyboard.....C4 Key

18, 19, 20

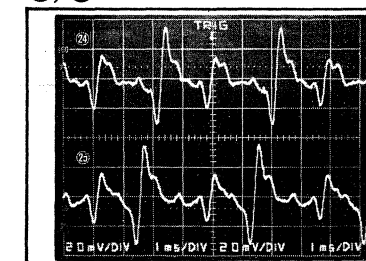


- Upper Poly.....Trumpet
- Celeste.....ON
- Upper Keyboard.....C4 Key

21, 22, 23



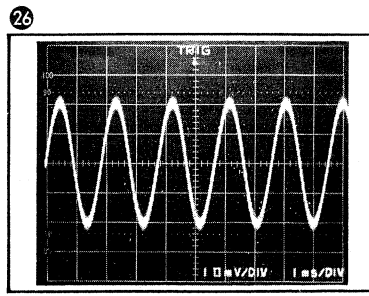
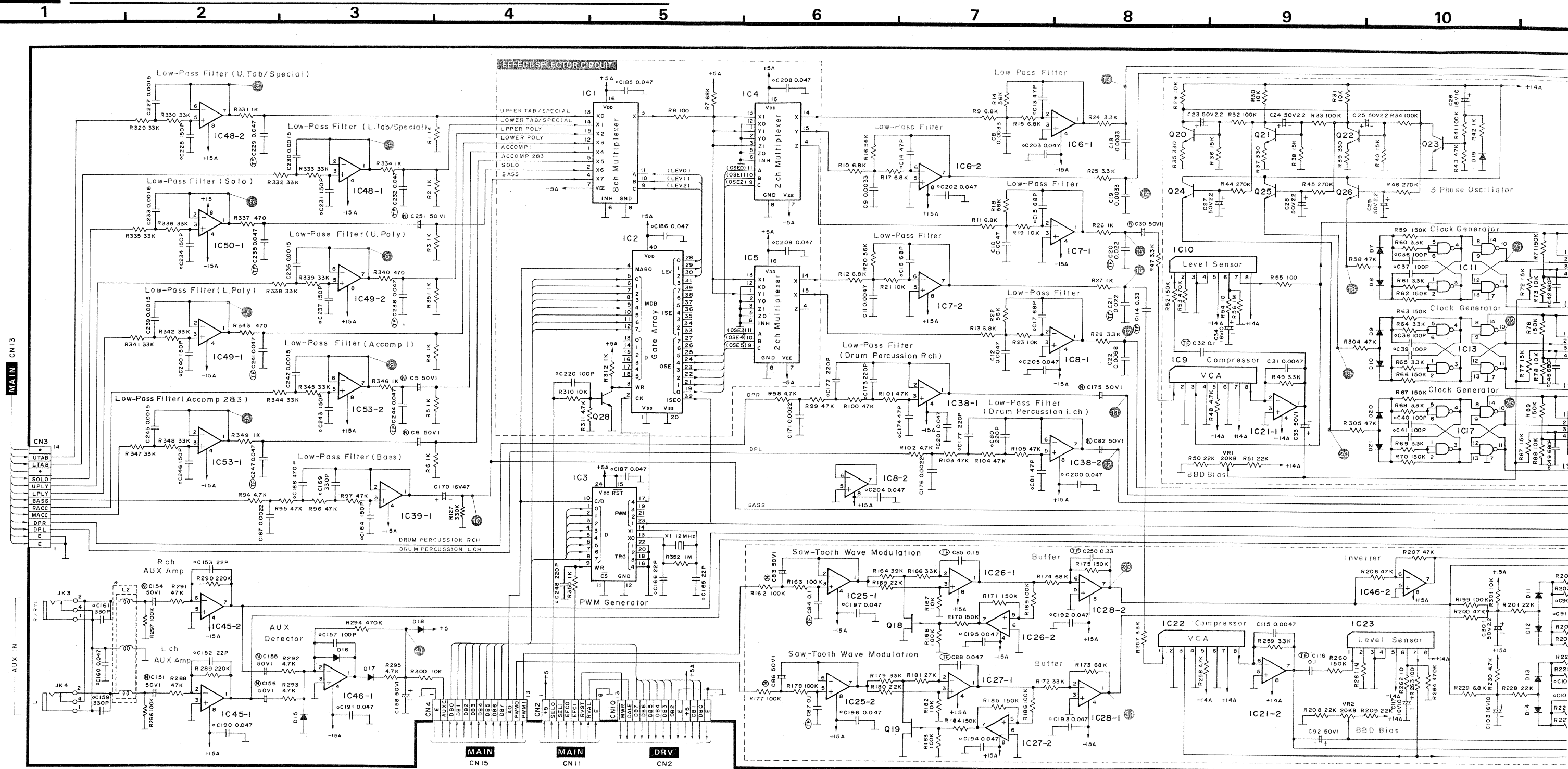
24, 25



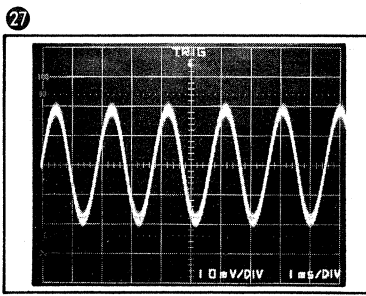
- Upper Poly.....Trumpet
- Celeste.....ON
- Upper Keyboard.....C4 Key

NOTES:

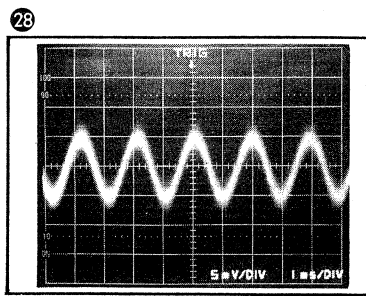
- IC'S
 - IC1: SVIGTC4051BP
 - IC2: SVIG65002018
 - IC3: M66240P
 - IC4, 5, 42: SVIGTC4053BP
 - IC6~8, 15, 19, 21, SVIGM5218L
 - 24~28, 33, 38~40, 43~50, 52, 53:
 - IC9, 16, 20, 22, 36, SVIGUPC1252H
 - 37:
 - IC10, 23: SVIGUPC1253H
 - IC11, 13, 17, 29, SVIGMSM4011
 - 30:
 - IC12, 14, 18: MN3004
 - IC31, 32: MN3006
 - IC34, 35: SVIGBA6110
 - IC41: SVIGLM1894N
 - IC51: SVIGM74H04
- TRANSISTORS
 - Q1, 3, 4, 7, 8, 12, 13, 20~26, 28, 30:
 - Q2, 5, 6, 9, 10, 11, 2SA1015-GR
 - 29:
 - Q14, 16: 2SC3940AR
 - Q15, 17: 2SA1534AR
 - Q18, 19: 2SJ105GR
- DIODES
 - D1: MA4062
 - D2: SVDGRK14S
 - D3~21: MA165TA5



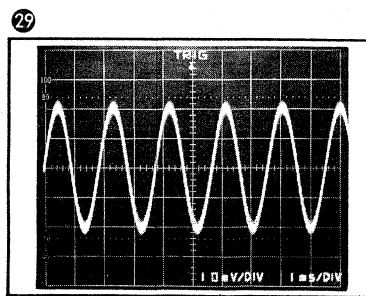
- Upper Tab.....Flute 8'
- Tremolo OFF
- Upper Keyboard.....C4 Key



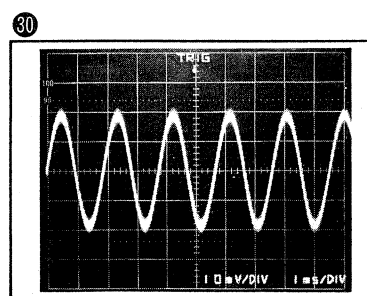
- Upper Tab.....Flute 8'
- Tremolo OFF
- Upper Keyboard.....C4 Key



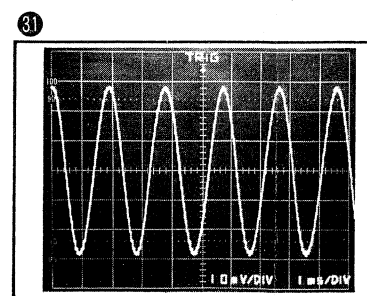
- Upper Tab.....Flute 8'
- Reverb.....ON
- Upper Keyboard.....C4 Key



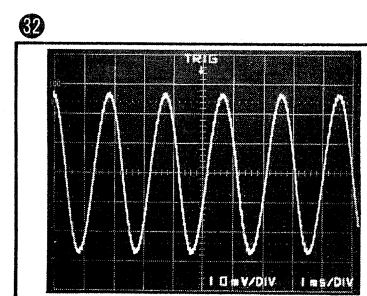
- Upper Tab.....Flute 8'
- Tremolo OFF
- Upper Keyboard.....C4 Key



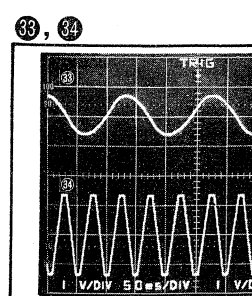
- Upper Tab.....Flute 8'
- Tremolo OFF
- Upper Keyboard.....C4 Key



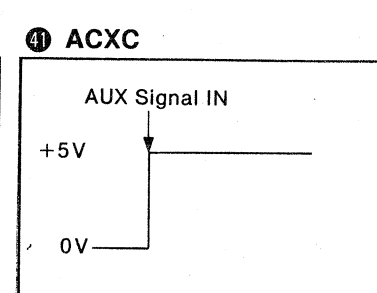
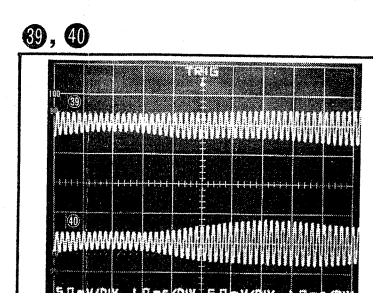
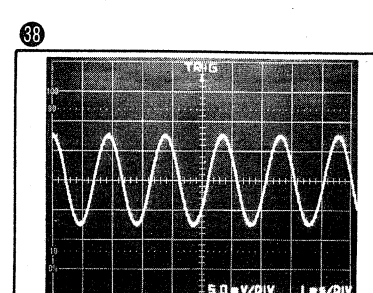
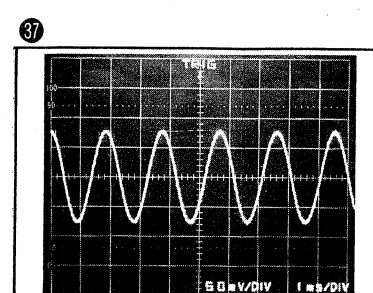
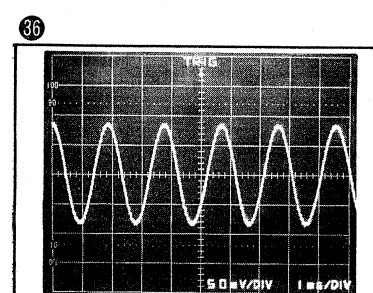
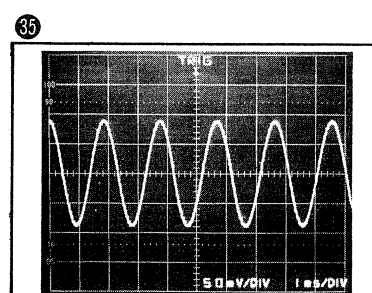
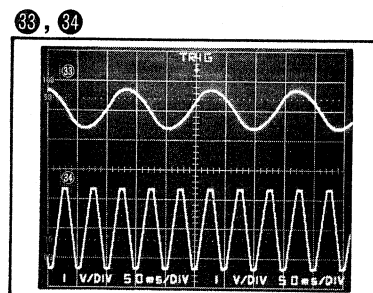
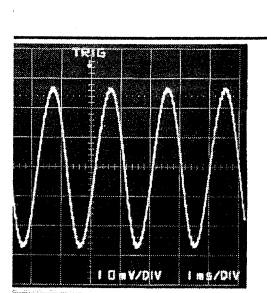
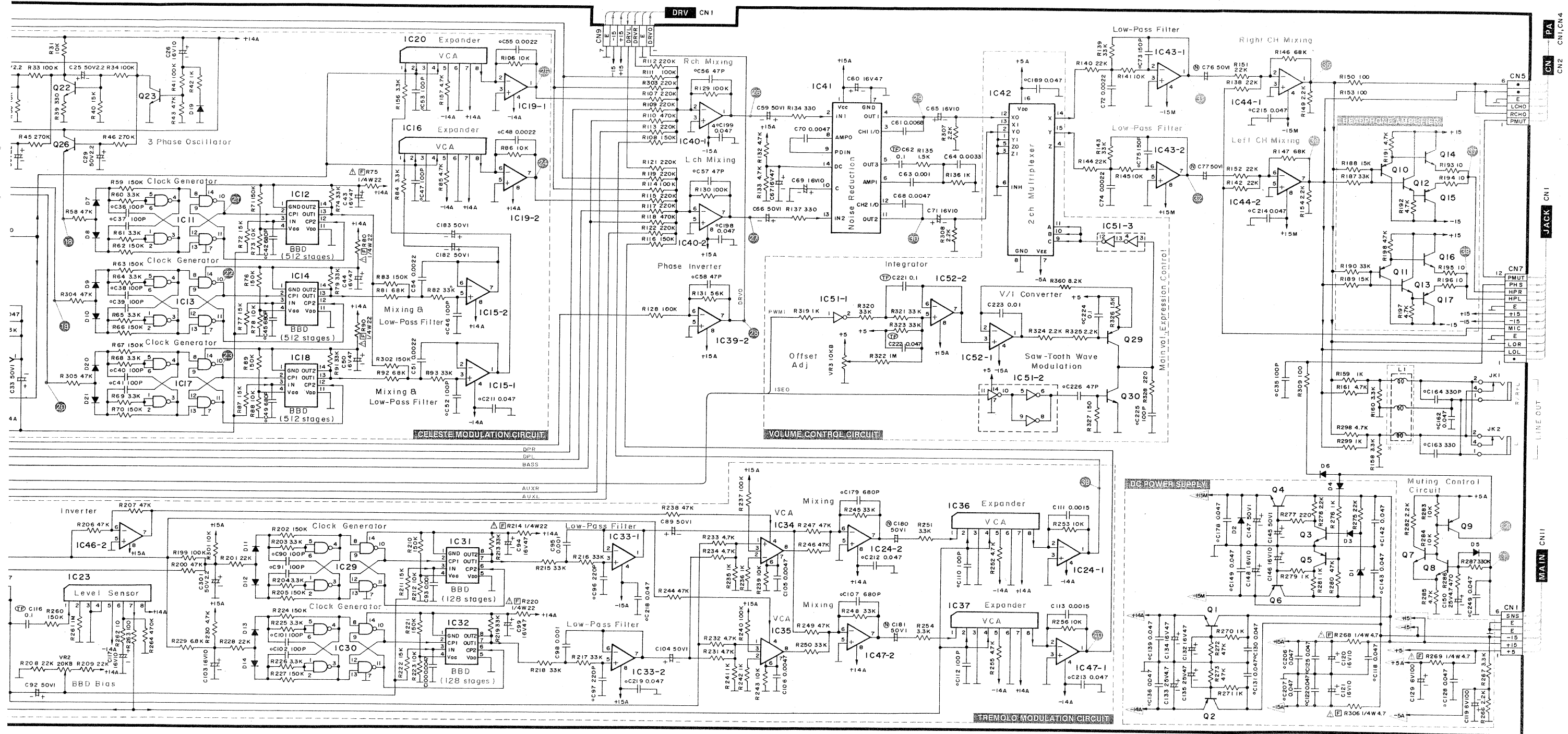
- Upper Tab.....Flute 8'
- Tremolo OFF
- EXP, Main Vol.....Max
- Upper Keyboard.....C4 Key



- Upper Tab.....Flute 8'
- Tremolo OFF
- EXP, Main Vol.....Max
- Upper Keyboard.....C4 Key



- Tremolo OFF



1b.....Flute 8
in Vol.....OFF
Keyboard.....C4 Key

• Tremolo Fast

• Upper Tab.....Flute 8
• Tremolo OFF
• EXP, Main Vol.....Max
• Upper Keyboard.....C4 Key

• Upper Tab.....Flute 8
• Tremolo OFF
• EXP, Main Vol.....Max
• Upper Keyboard.....C4 Key

• Upper Tab.....Flute 8
• Tremolo.....OFF • UKB...C4 Key
• EXP, Main Vol.....Max

• Upper Tab.....Flute 8
• Tremolo.....OFF • UKB...C4 Key
• EXP, Main Vol.....Max

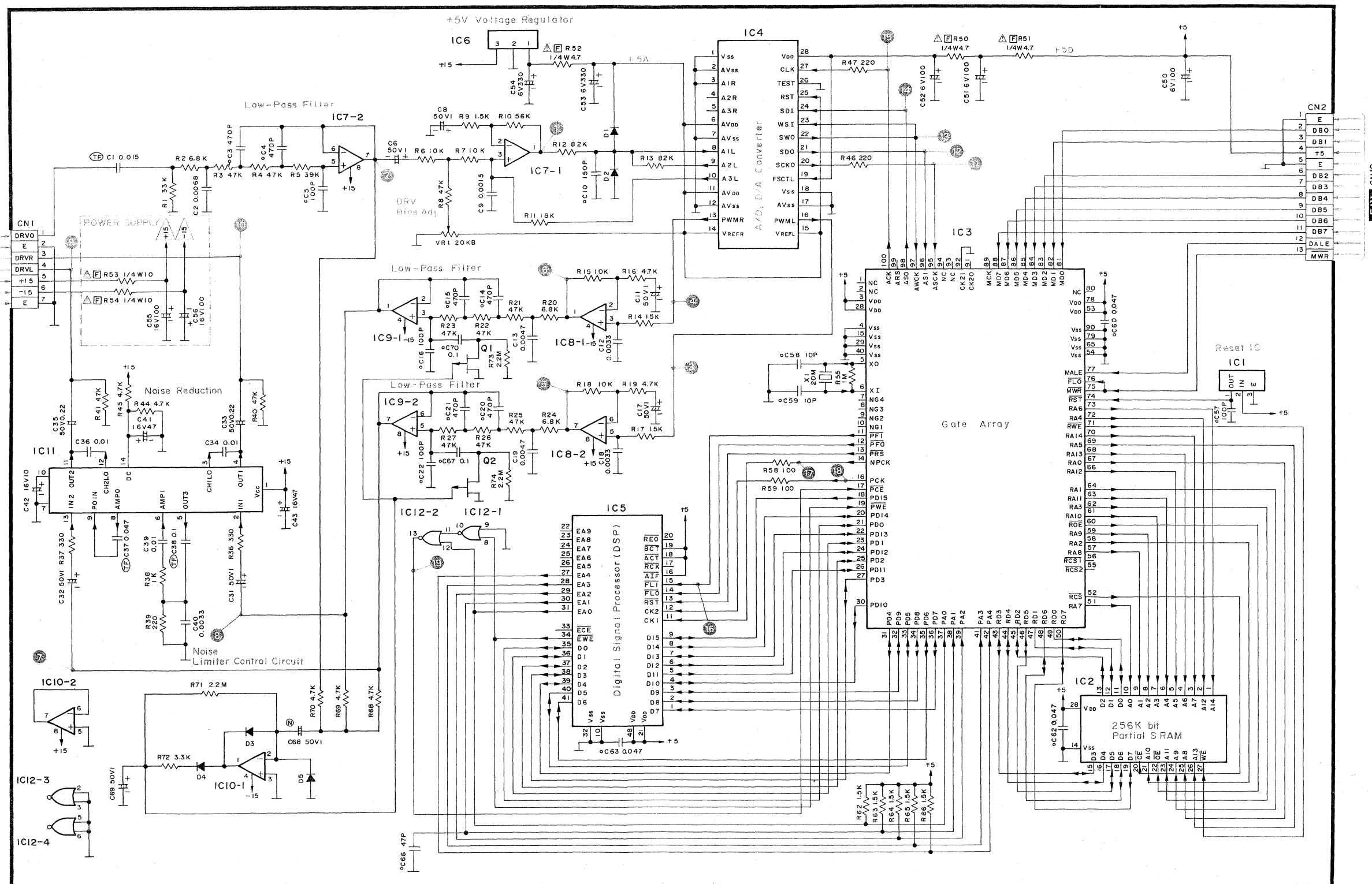
• Upper Tab.....Flute 8
• Tremolo ON (Fast)
• Upper Keyboard.....C4 Key

41 ACXC

AUX Signal IN

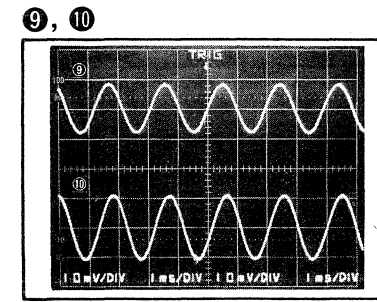
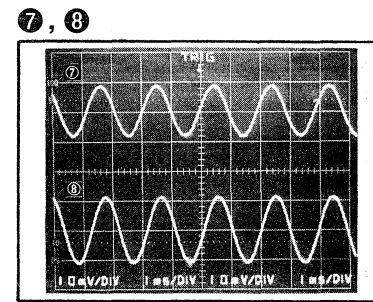
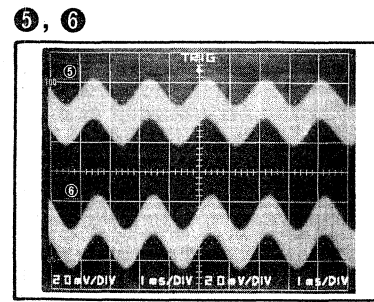
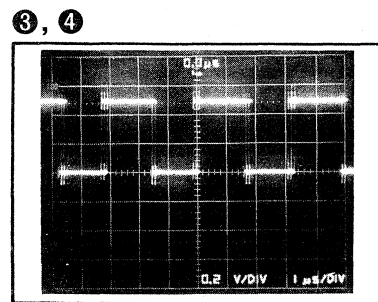
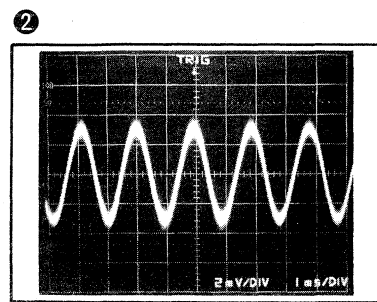
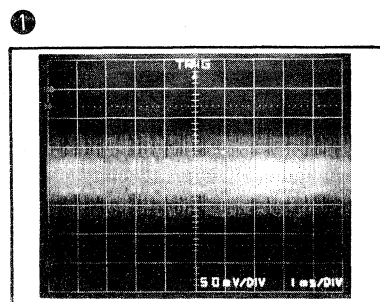
+5V

0V



NOTES:

- IC'S
- IC1: MN1280R
- IC2: SVIGHM65256
- IC3: SVIGMB622416
- IC4: MN8305S
- IC5: SVIG87064073
- IC6: SVIGM5278L05
- IC7: SVIGM5220L
- IC8~10: SVIGM5218L
- IC11: SVIGLM1894N
- IC12: MN74HC02S
- TRANSISTORS
- Q1, 2: 2SJ105GR
- DIODES
- D1~5: MA165TA5

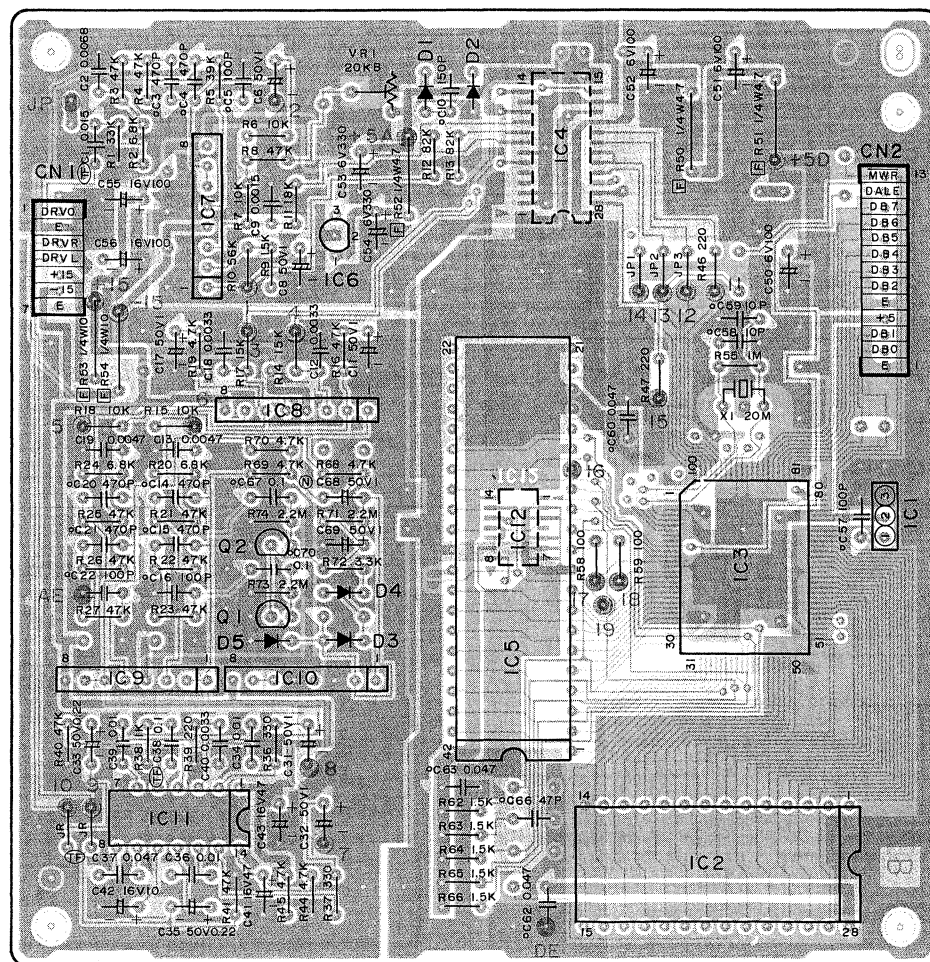


Circuit view on top of P.C.B.

SXPG146021

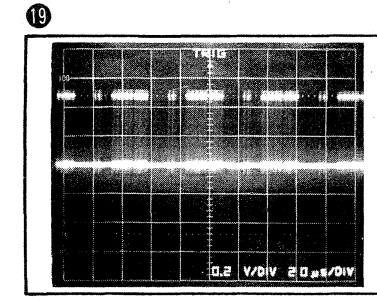
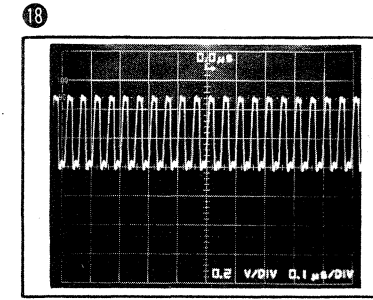
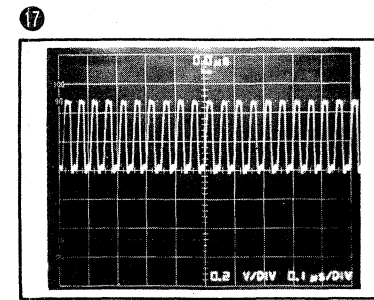
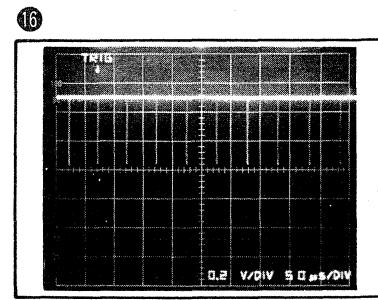
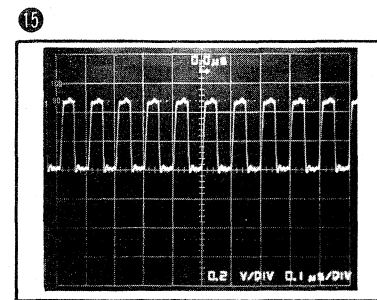
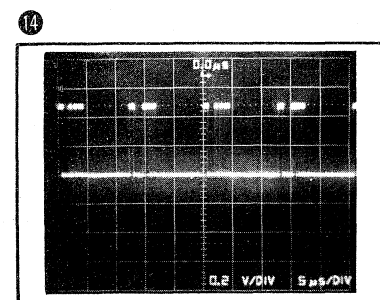
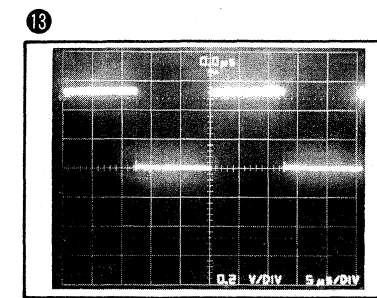
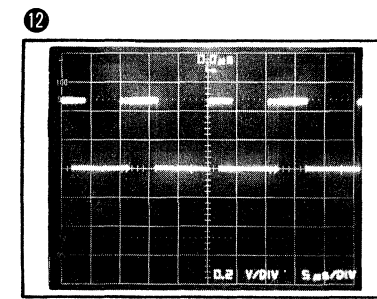
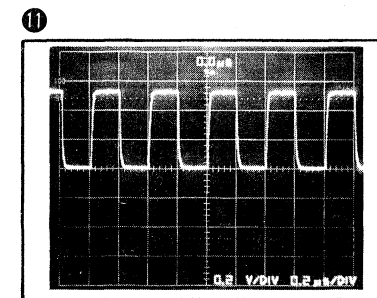
Measuring Conditions

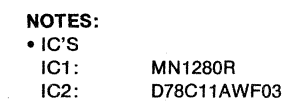
- Set to the initial mode. (Refer to page I-3)
- Set the all parts INITIAL TOUCH SENSE function (EFFECT MODE: Page 4) to "0". (Upper=0, Lower=0, Bass=0)
- Set the unit as follows.
 - Upper Orchestrator.....Tab & Organ
 - Upper Tab & Organ.....Flute 8'
 - Reverb (Upper Tab) ON
 - Effect.....Page 1
 - Reverb Depth....."8"
 - TYPE.....HALL
 - Upper Keyboard.....C4 Key



NOTES:

- IC'S
 - IC1: MN1280R
 - IC2: SVIGHM65256
 - IC3: SVIGM622416
 - IC4: MN8305S
 - IC5: SVIG87064073
 - IC6: SVIGM5278L05
 - IC7: SVIGM5220L
 - IC8~10: SVIGM5218L
 - IC11: SVIGLM1894N
 - IC12: MN74HC02S
- TRANSISTORS
 - Q1, 2: 2SJ105GR
- DIODES
 - D1~5: MA165TA5

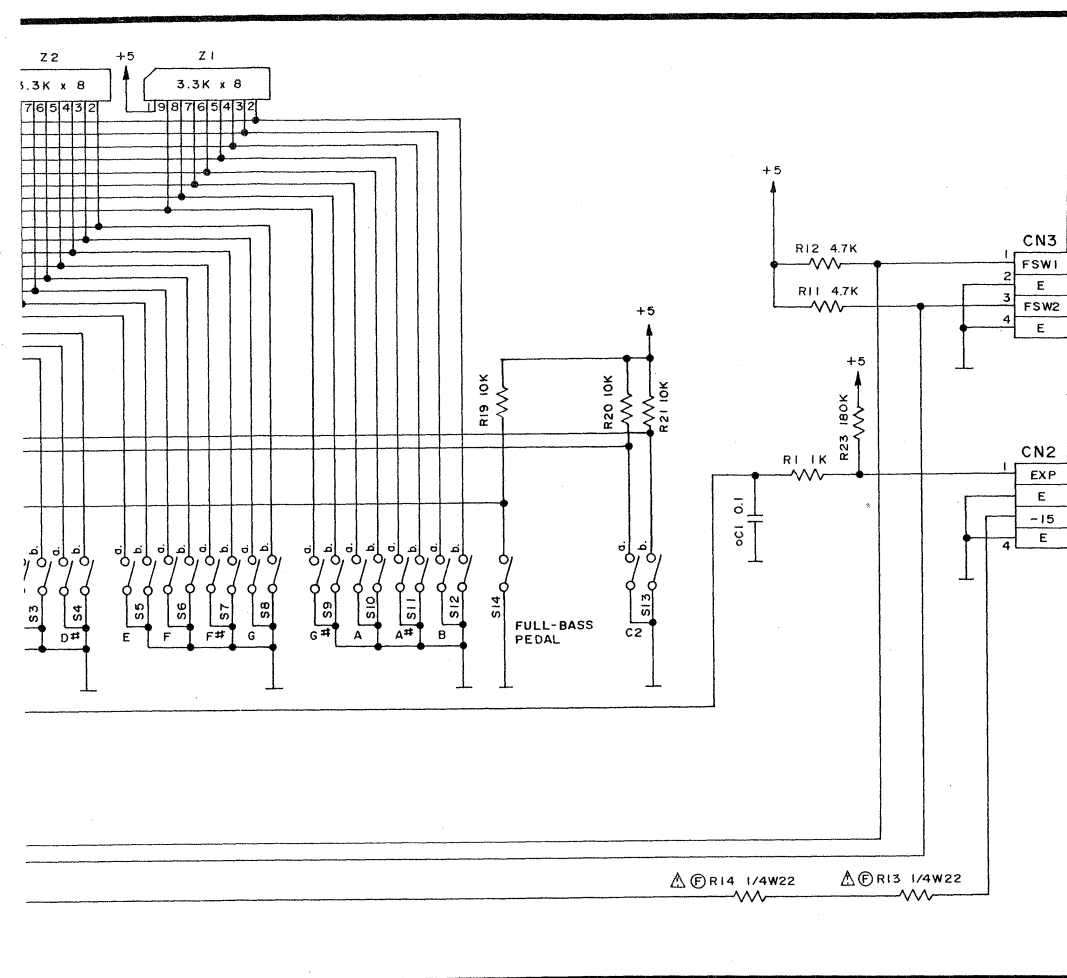




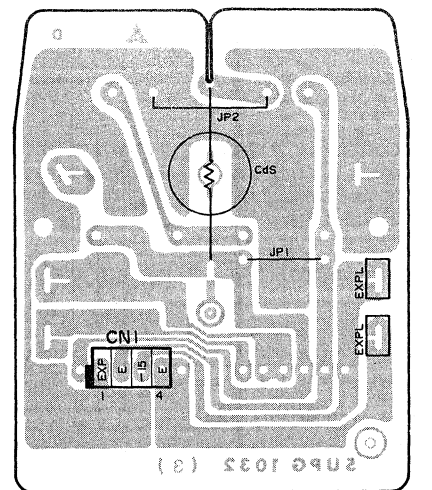
PEDAL KEYBOARD CIRCUIT BOARD



5 6 7 8 9 10 11 12 13 14



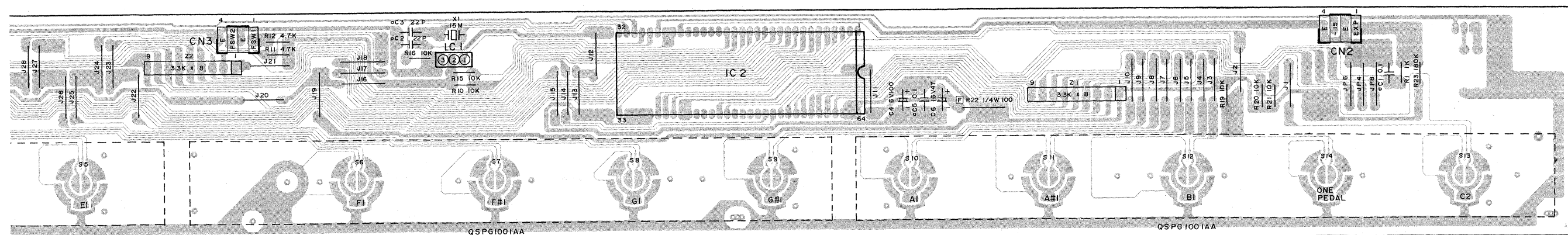
SXPG103211

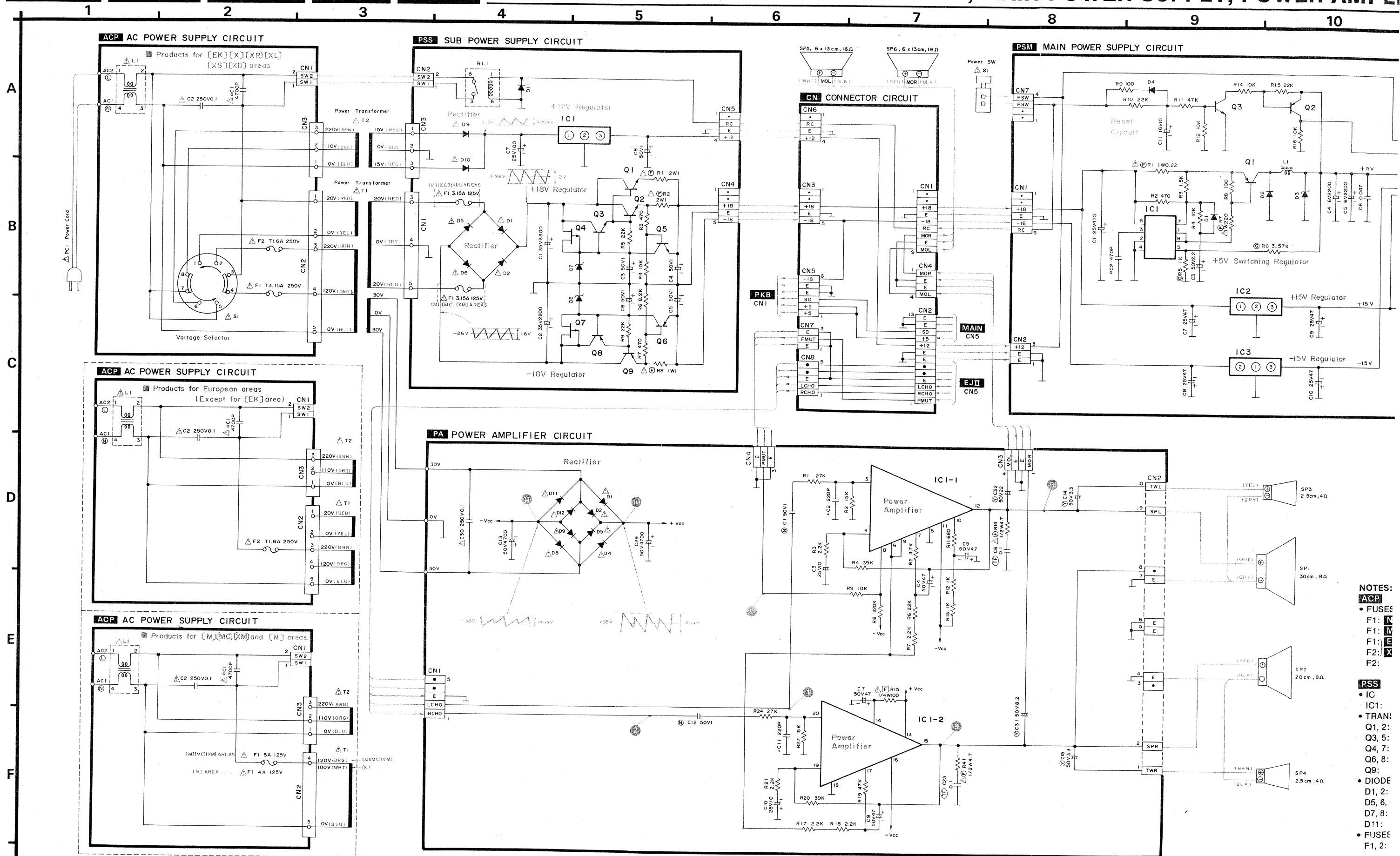


NOTES:

- IC'S
- IC1: MN1280R
- IC2: D78C11AWF03

SXPG201211





NOTES:

ACP

FUSES

F1: N

F1: IV

F1: E

F2: X

F2:

PSS

IC

IC1:

TRAN:

Q1, 2:

Q3, 5:

Q4, 7:

Q6, 8:

Q9:

DIODE

D1, 2:

D5, 6:

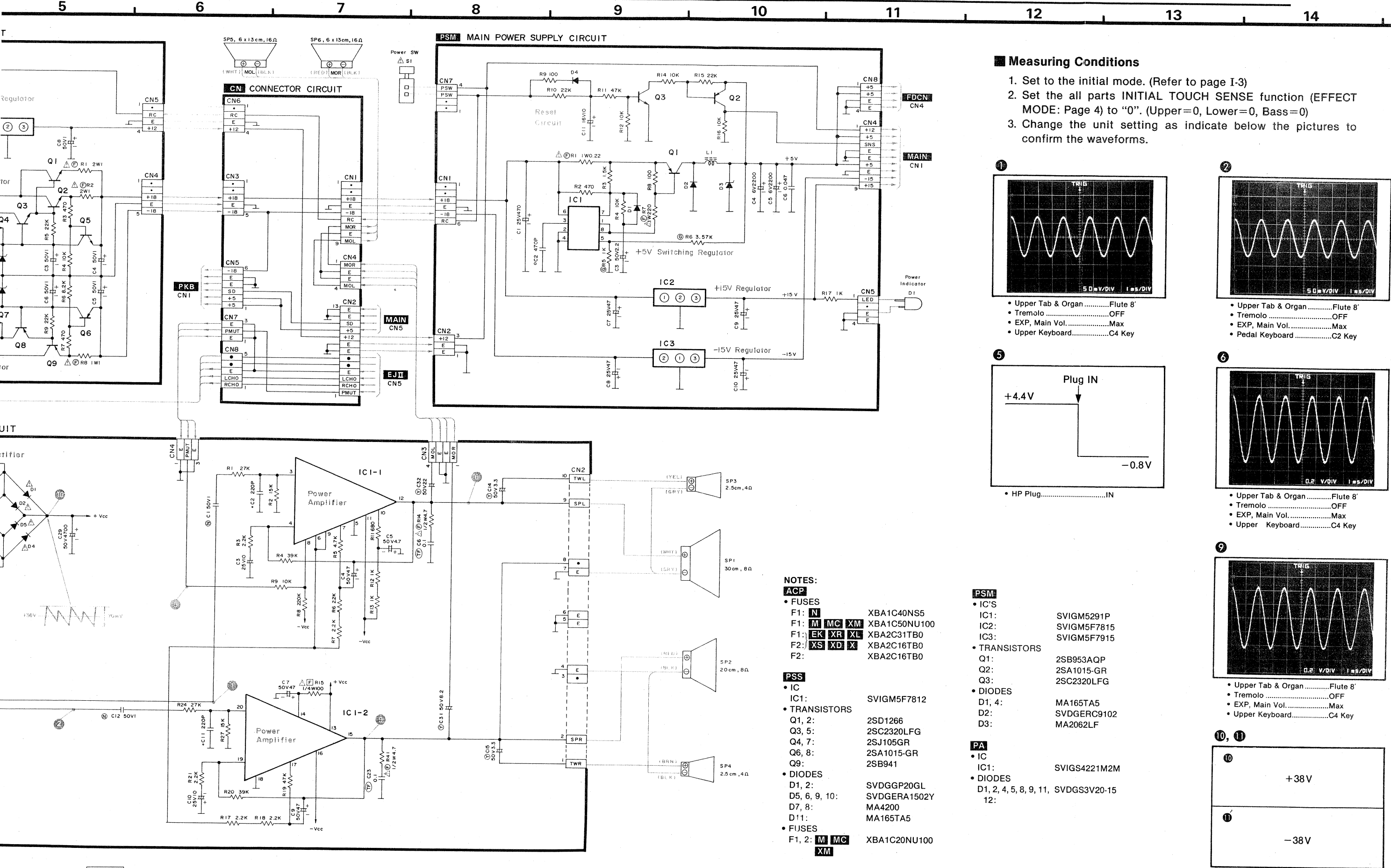
D7, 8:

D11:

FUSES

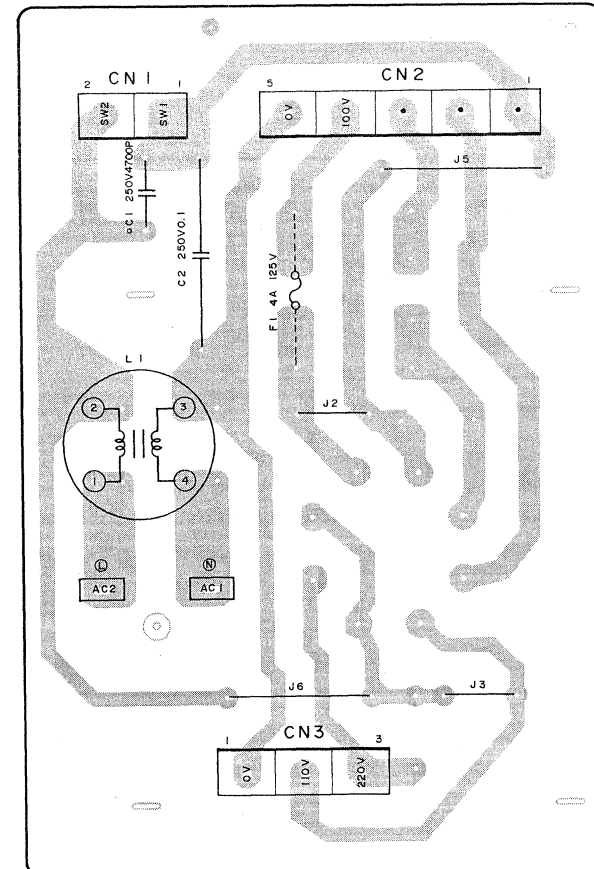
F1, 2:

NER SUPPLY, SUB POWER SUPPLY, MAIN POWER SUPPLY, POWER AMPLIFIER & CONNECTOR CIRCUIT DIAGRAM



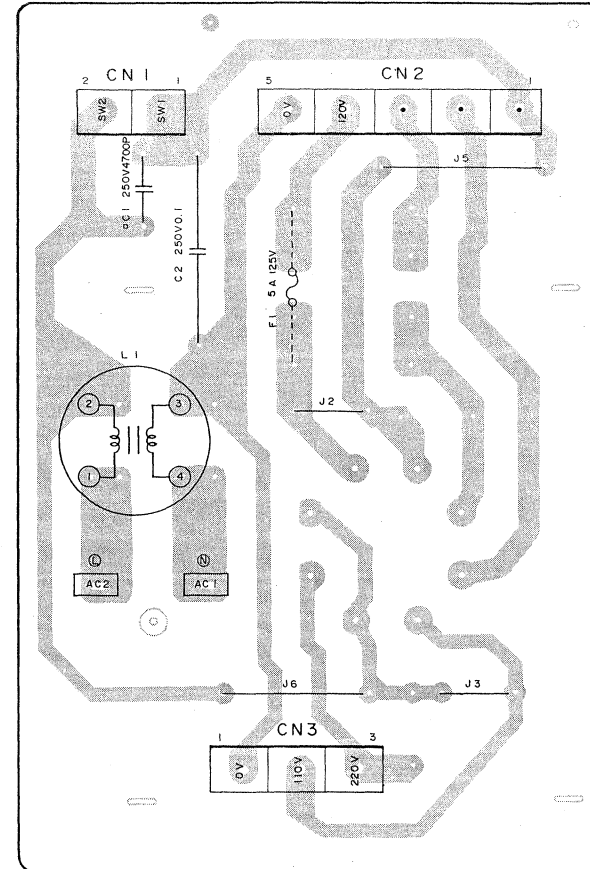
ACP AC POWER SUPPLY P.C.B.

• [N] only SOPG201571A



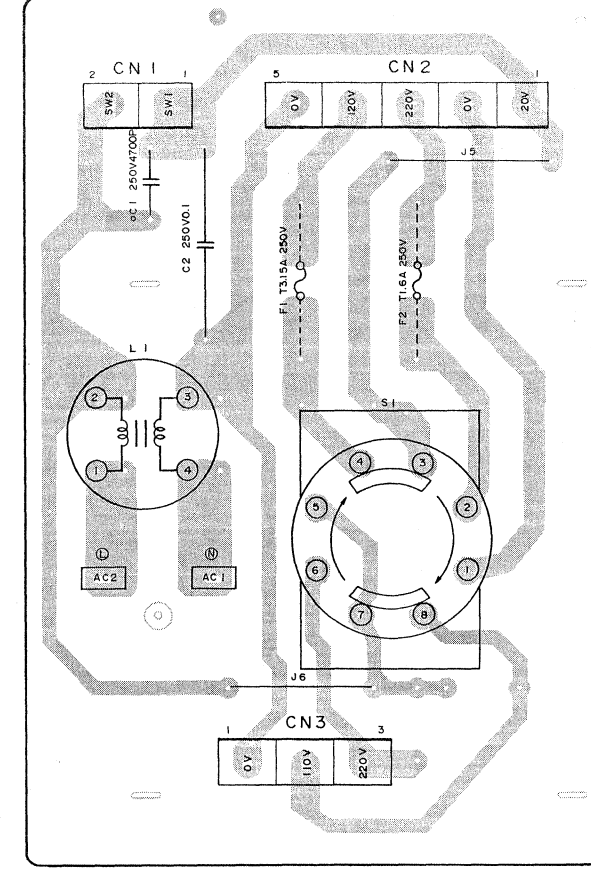
NOTE: F1: XBA1C40NS5

• [M] [MC] [XM] only SOPG201581A



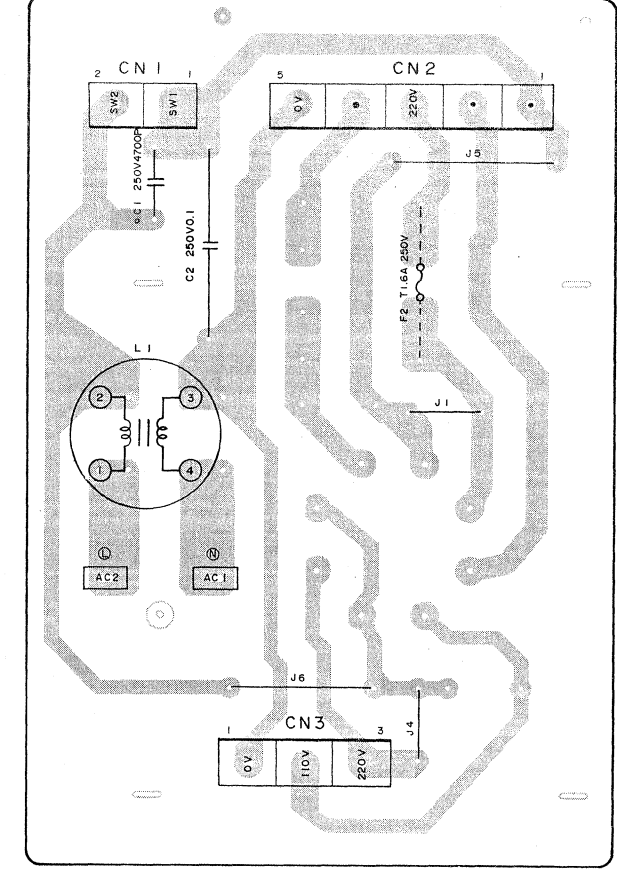
NOTE: F1: XBA1C50NU100

• [EK] [XL] [XR] [XS] [XD] [X] only SOPG201531A



NOTES: F1: XBA2C31TB0 F2: XBA2C16TB0

• Others SOPG201521A

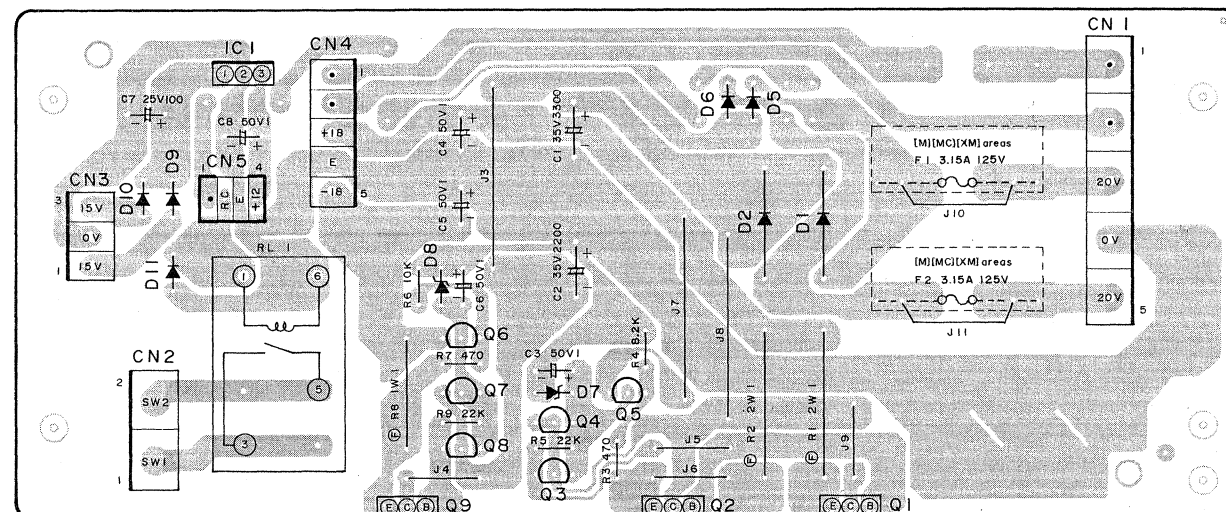


NOTE: F2: XBA2C16TB0

PSS SUB POWER SUPPLY P.C.B.

• [M] [MC] [XM] only SXPG201521B

• Others SXPG201511B



PSS NOTES:

- IC SVIGM5F7812
- FUSES F1, 2: [M] [MC] [XM] XBA1C31NU100

TRANSISTORS

- Q1, 2: 2SD1266
- Q3, 5: 2SC2320LFG
- Q4, 7: 2SJ105GR
- Q6, 8: 2SA1015-GR
- Q9: 2SB941

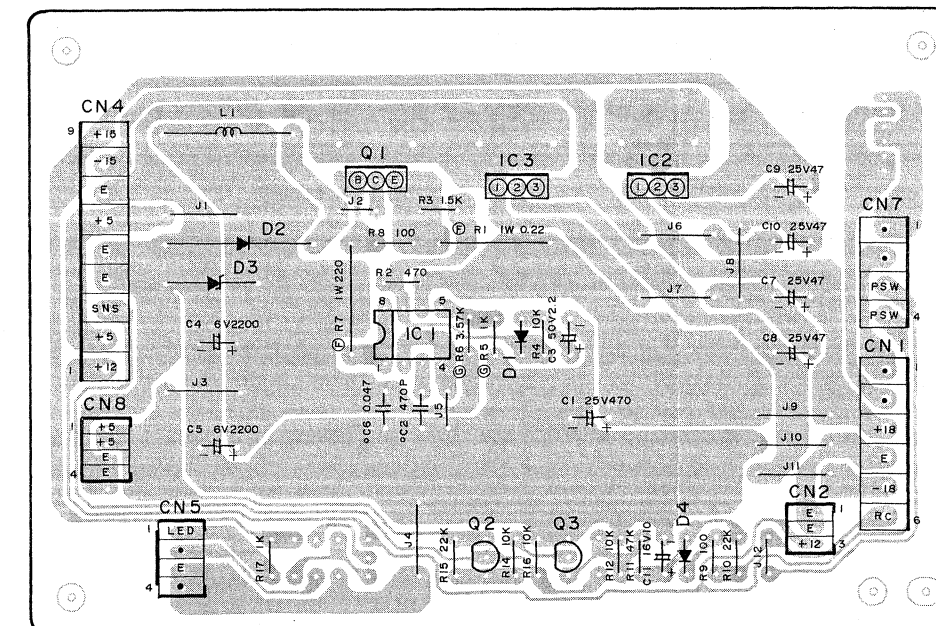
DIODES

- D1, 2: SVDGGP20GL
- D5, 6, 9, 10: SVDGERA1502Y
- D7, 8: MA4200
- D11: MA165TA5

II-45

PSM MAIN POWER SUPPLY P.C.B.

SXPG201511C



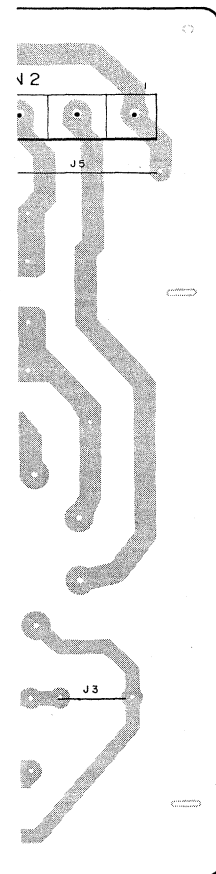
PSM NOTES:

- IC'S
 - IC1: SVIGM5291P
 - IC2: SVIGM5F7815
 - IC3: SVIGM5F7915
- TRANSISTORS
 - Q1: 2SB953AQP
 - Q2: 2SA1015-GR
 - Q3: 2SC2320LFG
- DIODES
 - D1, 4: MA165TA5
 - D2: SVDGERC9102
 - D3: MA2062LF

II-46

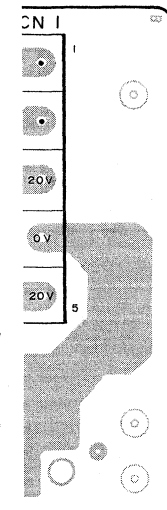
SUB POWER SUPPLY, MAIN POWER SUPPLY CIRCUIT BOARD

PG201581A



201521B

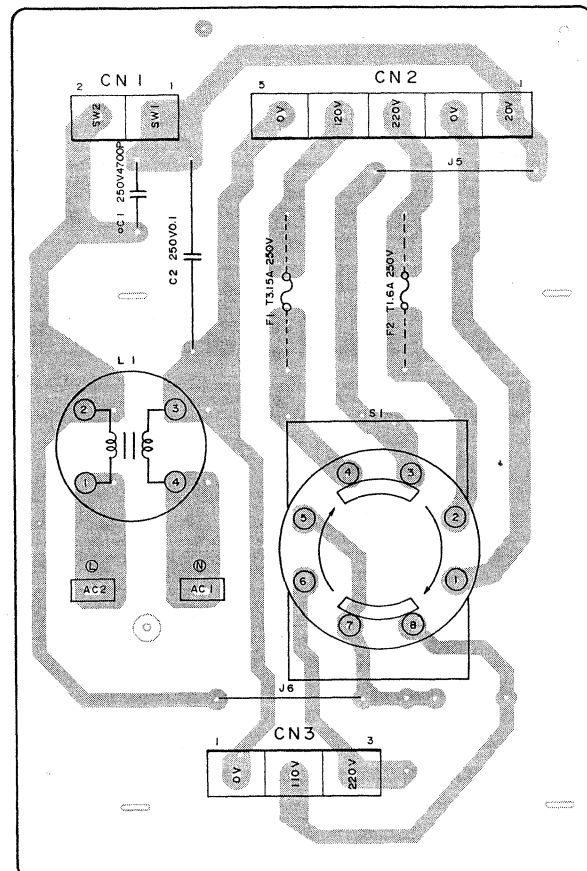
201511B



L
J2Y

• [EK] [XL] [XR] [XS] [XD] [X] only

SOPG201531A

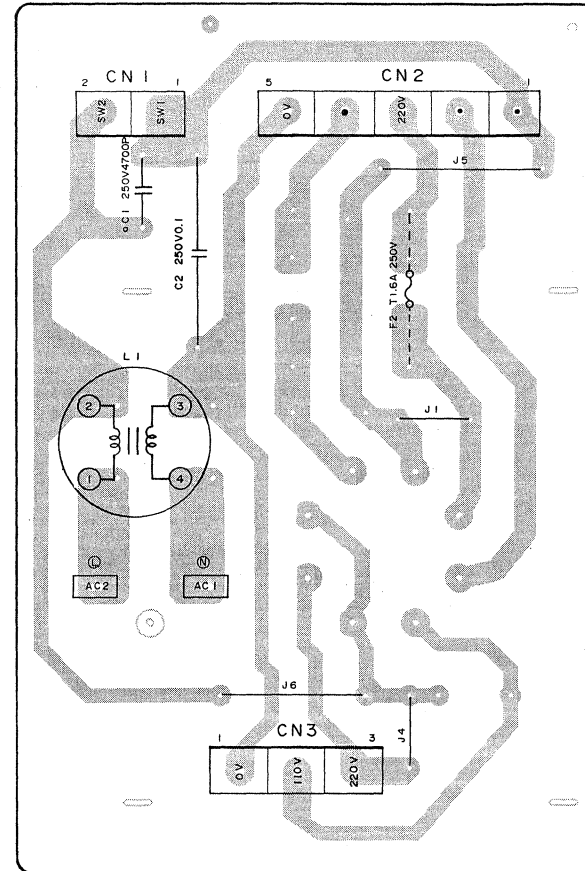


NOTES: F1: XBA2C31TB0 F2: XBA2C16TB0

PSM MAIN POWER SUPPLY P.C.B.

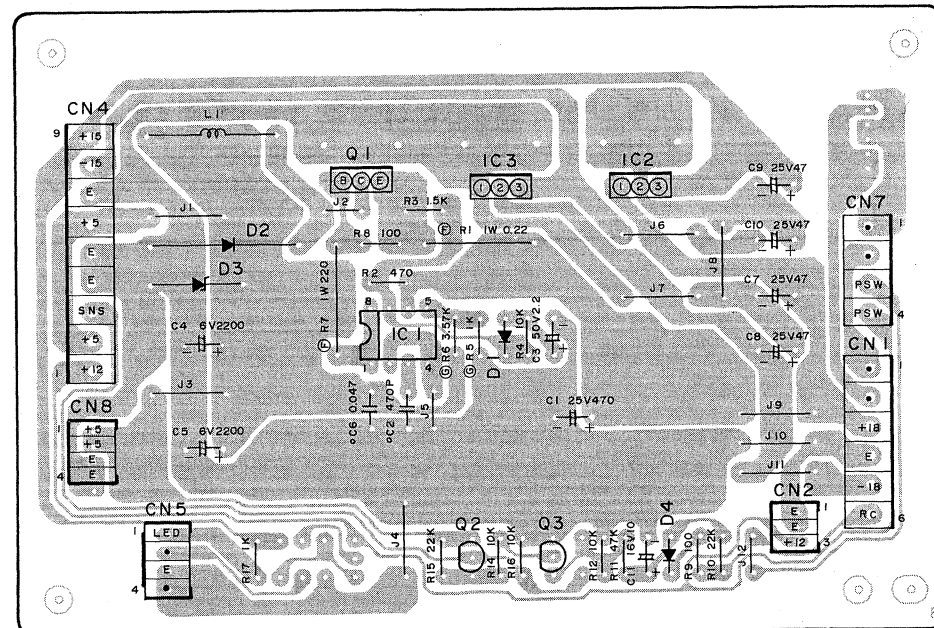
• Others

SOPG201521A



NOTE: F2: XBA2C16TB0

SXPG201511C



PSM

NOTES:

• IC'S

IC1:

IC2:

IC3:

• TRANSISTORS

Q1:

Q2:

Q3:

• DIODES

D1, 4:

D2:

D3:

SVIGM5291P
SVIGM5F7815
SVIGM5F7915

2SB953AQP
2SA1015-GR
2SC2320LFG

MA165TA5
SVDGERC9102
MA2062LF

II-45

II-46

PA

POWER AMPLIFIER CIRCUIT BOARD

SXPG139271

A

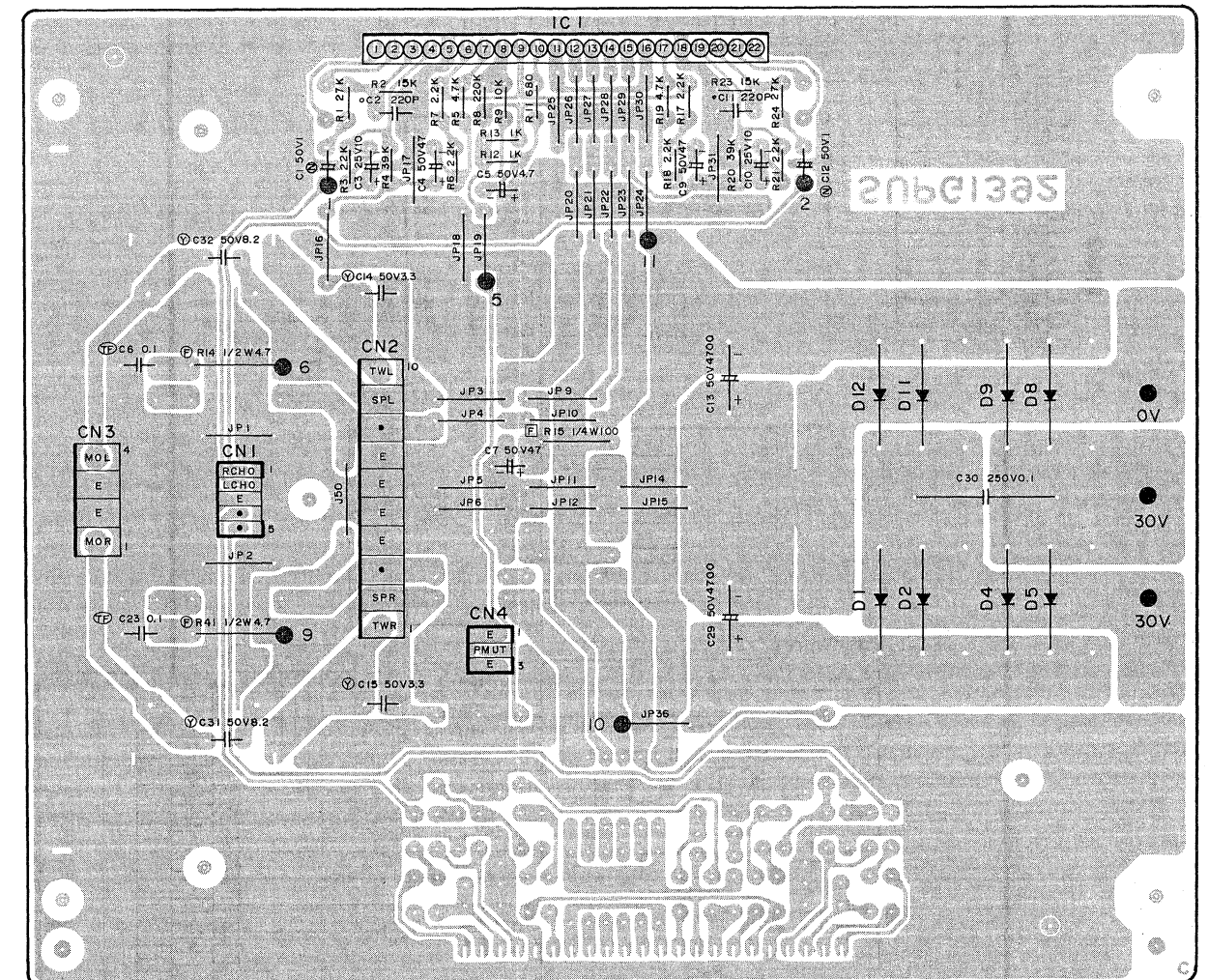
B

C

D

E

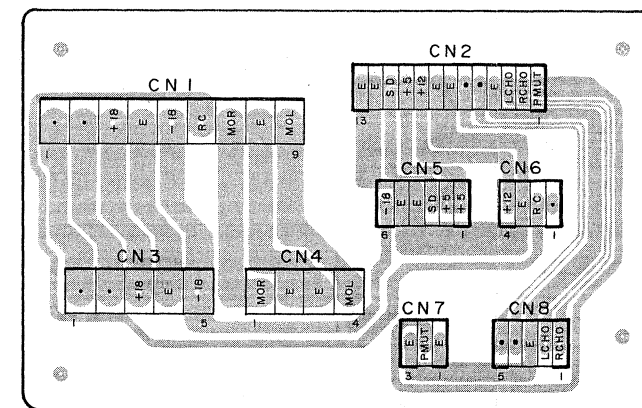
F



CN

CONNECTOR BOARD

SXPG200711B



PA

NOTES:

• IC

IC1:

• DIODES

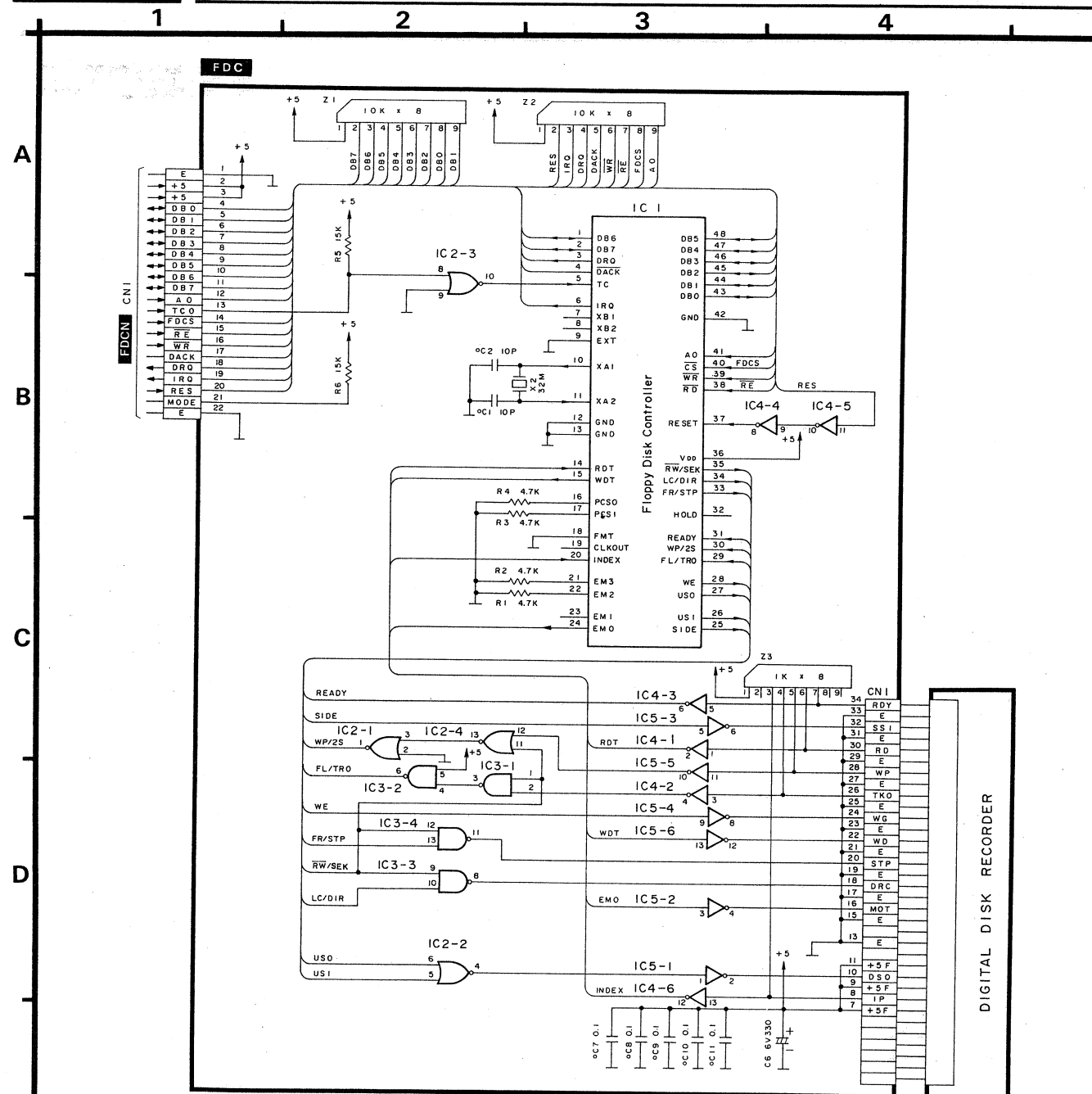
D1, 2, 4, 5, 8, 9,

11, 12:

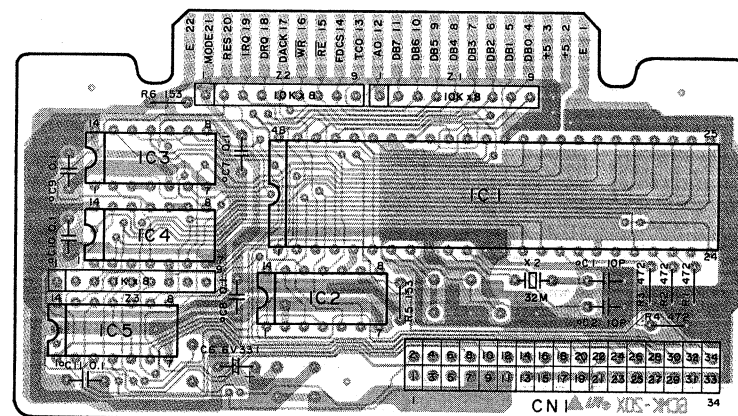
SVIGS4221M2M

SVDGS3V20-15

II-47



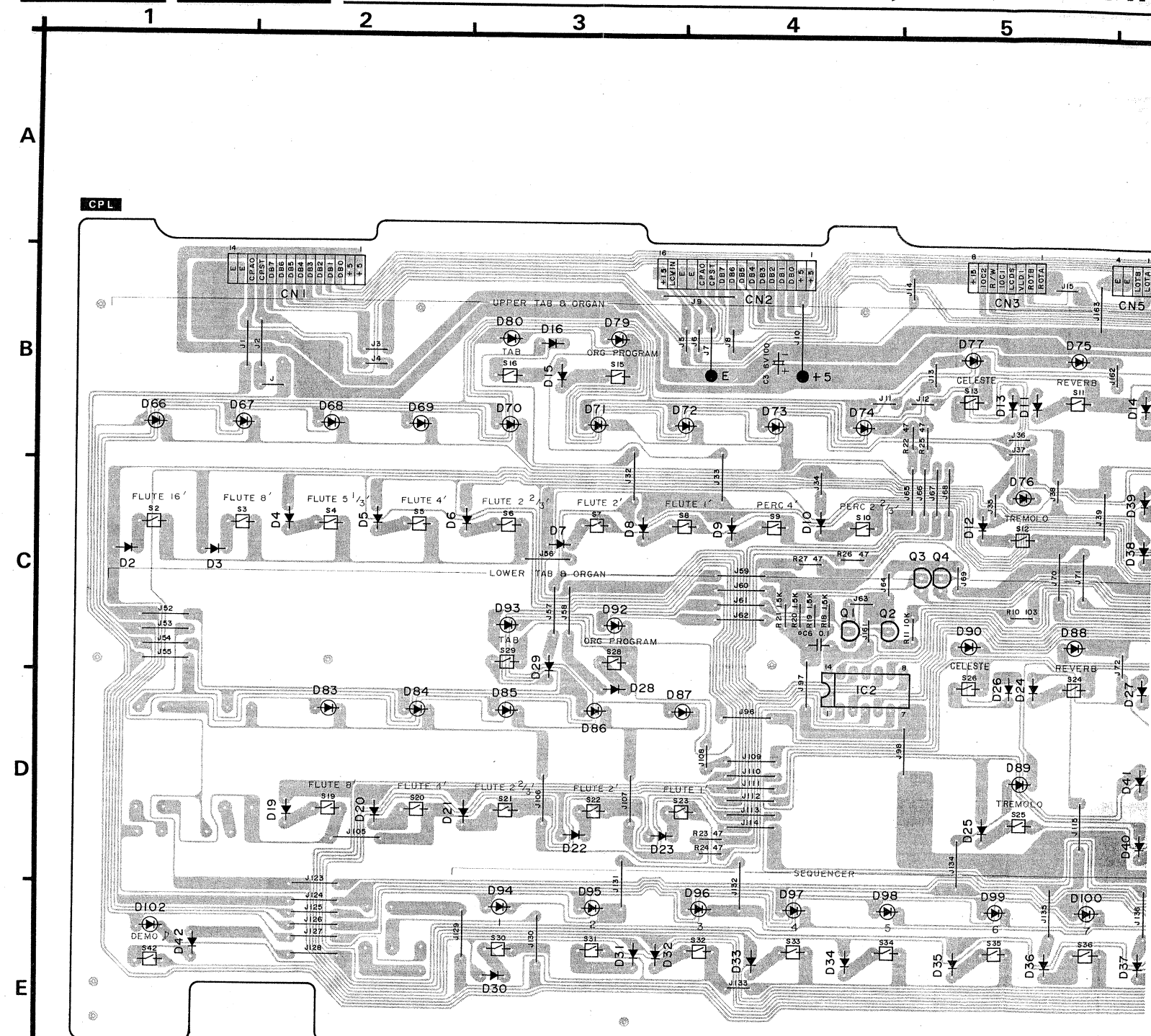
Circuit view on top of P.C.B.



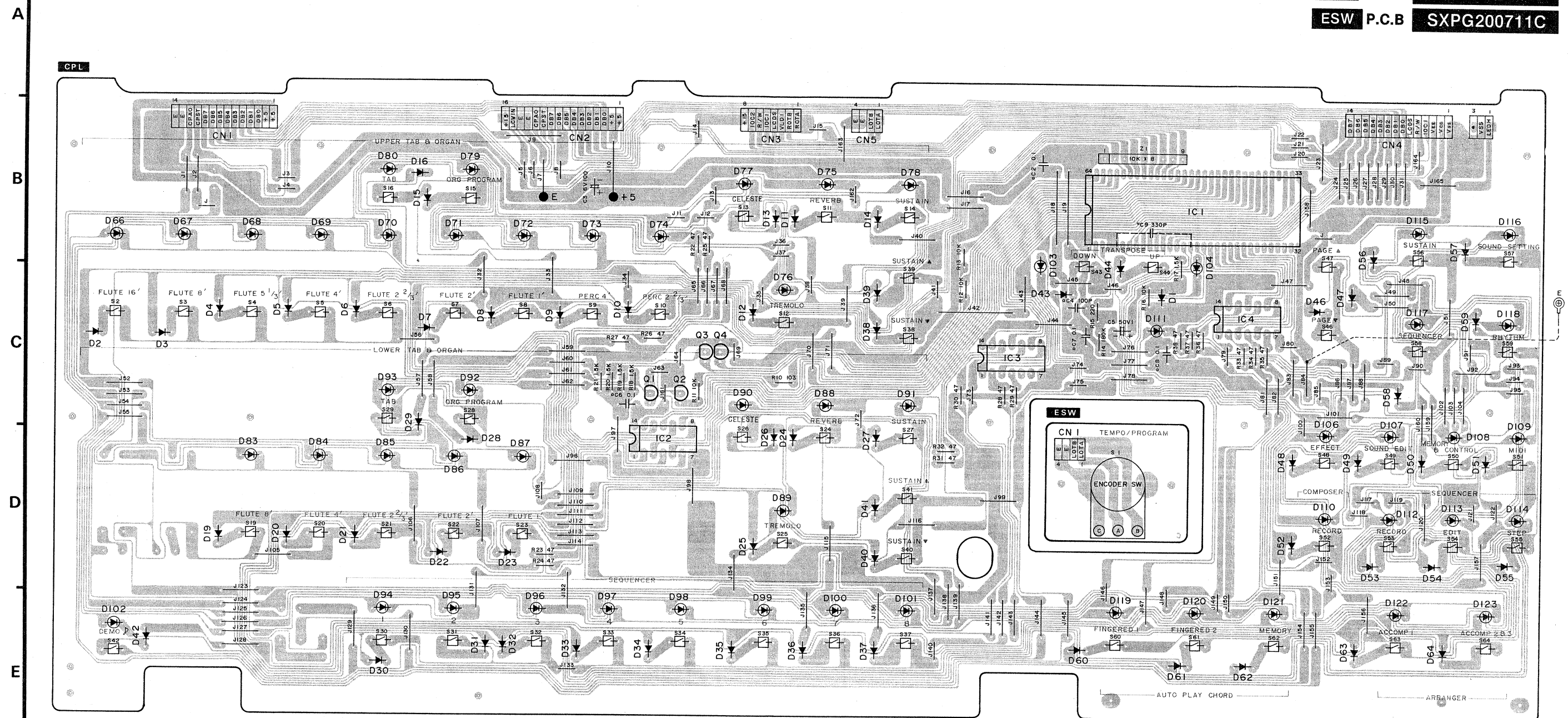
SXPG146111

NOTES:

- IC'S
- IC1: SVIGD72067C
- IC2: SVIGM74H02
- IC3: SVIGM74H00
- IC4: SVIGM74H14
- IC5: SVIGM74H04



CPL P.C.B SXP200631
 ESW P.C.B SXP200711C

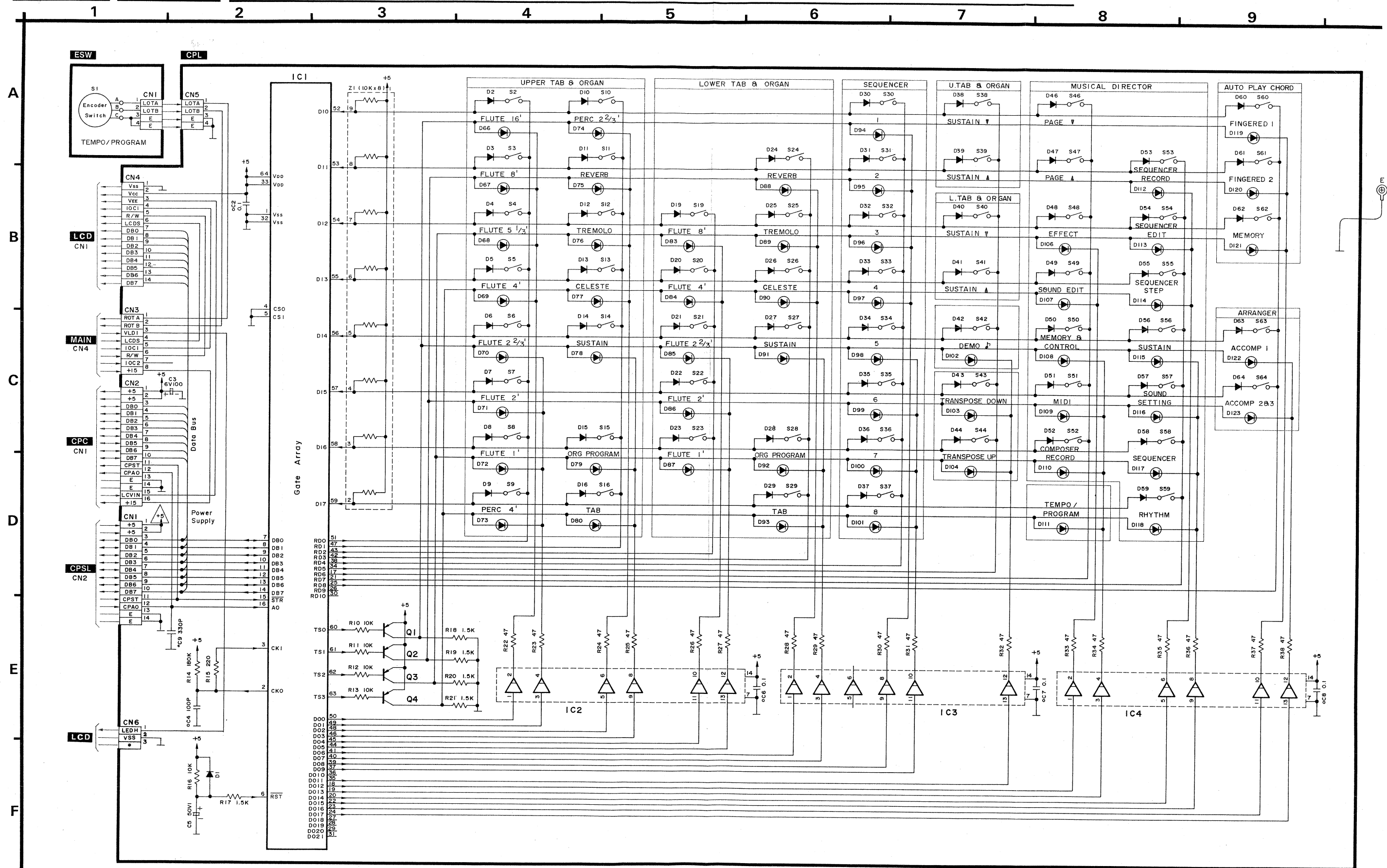


NOTES:

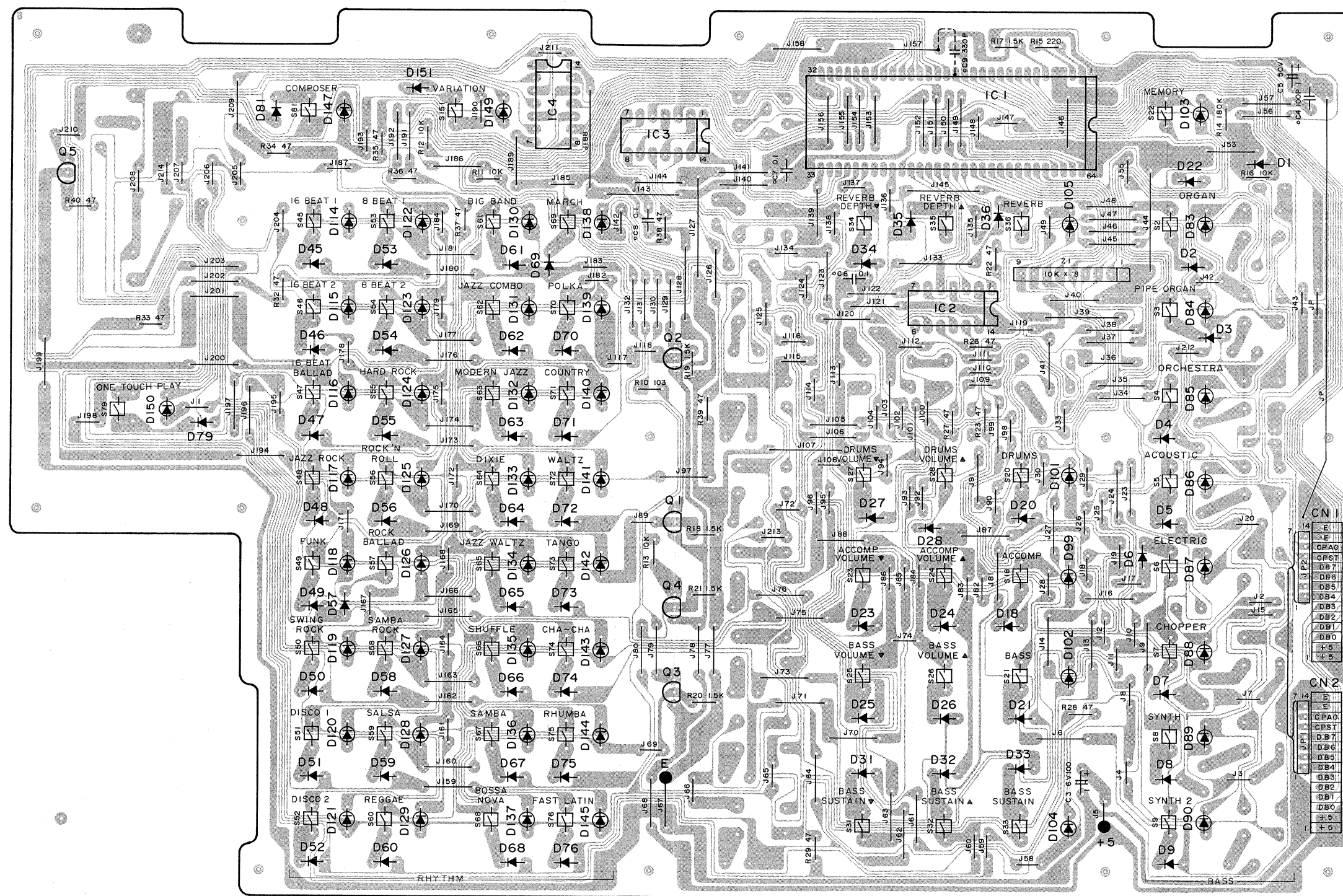
- IC'S
 IC1: SVIGM603A121
 IC2~4: SVIGM74LS07
- TRANSISTORS
 Q1~4: 2SA830SB
- DIODES
 D1~16, 19~64: MA165TA5
 D66~78, 80, 83~91, 93, 103, 104, 119~123: LN282R
 D79, 92, 94~102, 106~118: LN382G

ESW

UPPER CONTROL PANEL LEFT, ENCODER SWITCH CIRCUIT DIAGRAM



SXPG200531

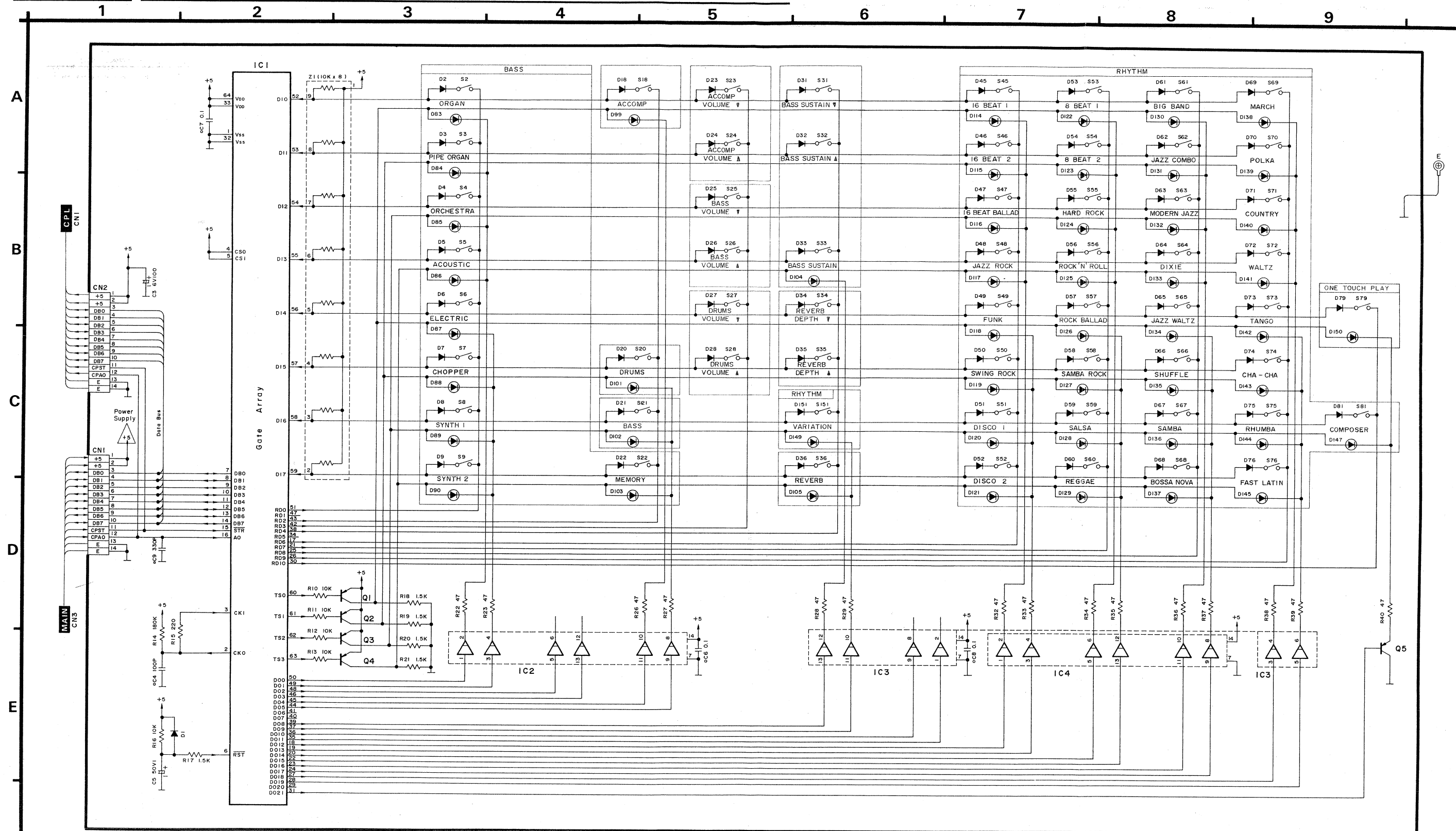


NOTES:

- IC'S
- IC1: SVIGM603A121
- IC2~4: SVIGM74LS07
- TRANSISTORS
- Q1~5: 2SA830SB

- DIODES
- D1~76, 79~82, MA165TA5
- 151:
- D83~90, SEL2210SM
- 114~145:

- D99~102, 104, LN282R
- 105:
- D103, 147, 149, LN382G
- 150:



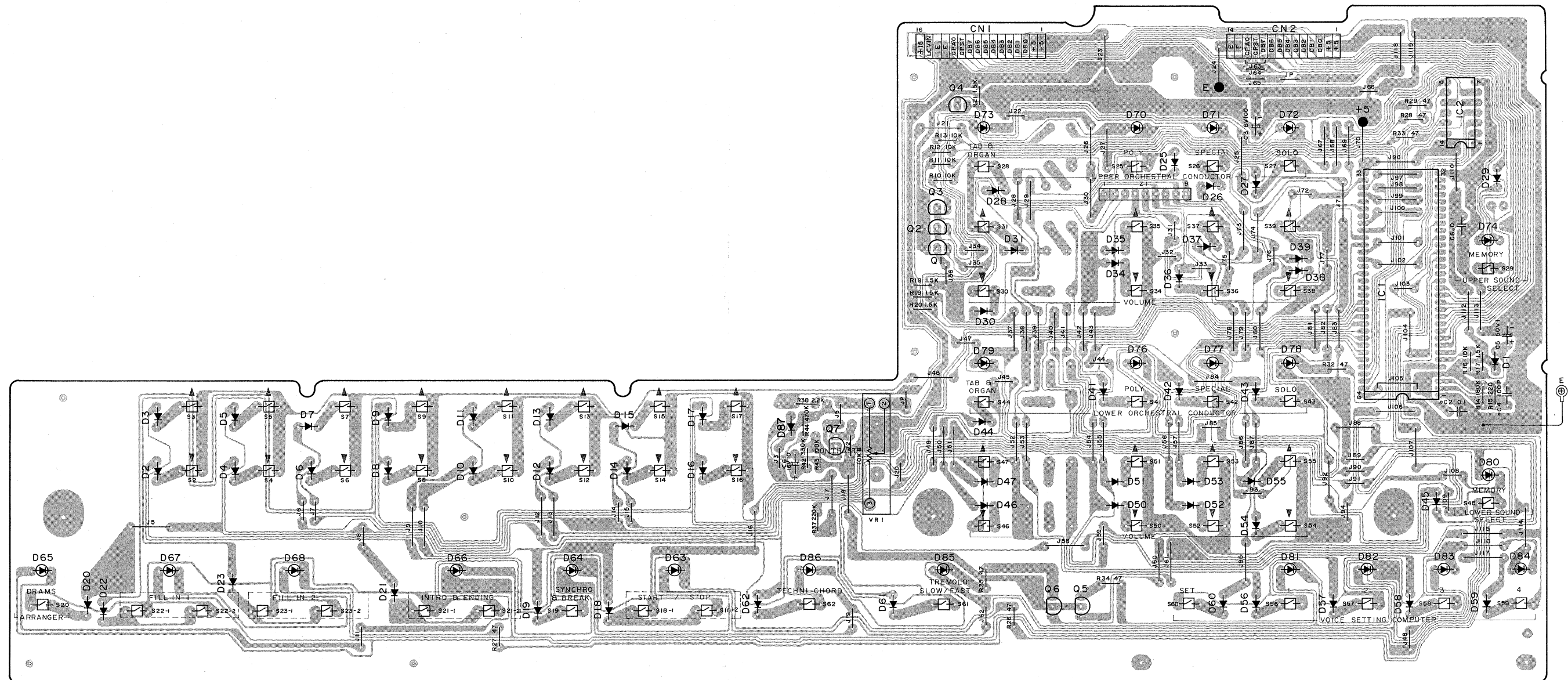
NOTES:

- IC'S
- IC1: SVIGM603A121
- IC2~4: SVIGM74LS07
- TRANSISTORS
- Q1~5: 2SA830SB

- DIODES
- D1~76, 79~82, MA165TA5
- 151:
- D83~90, SEL2210SM
- 114~145:

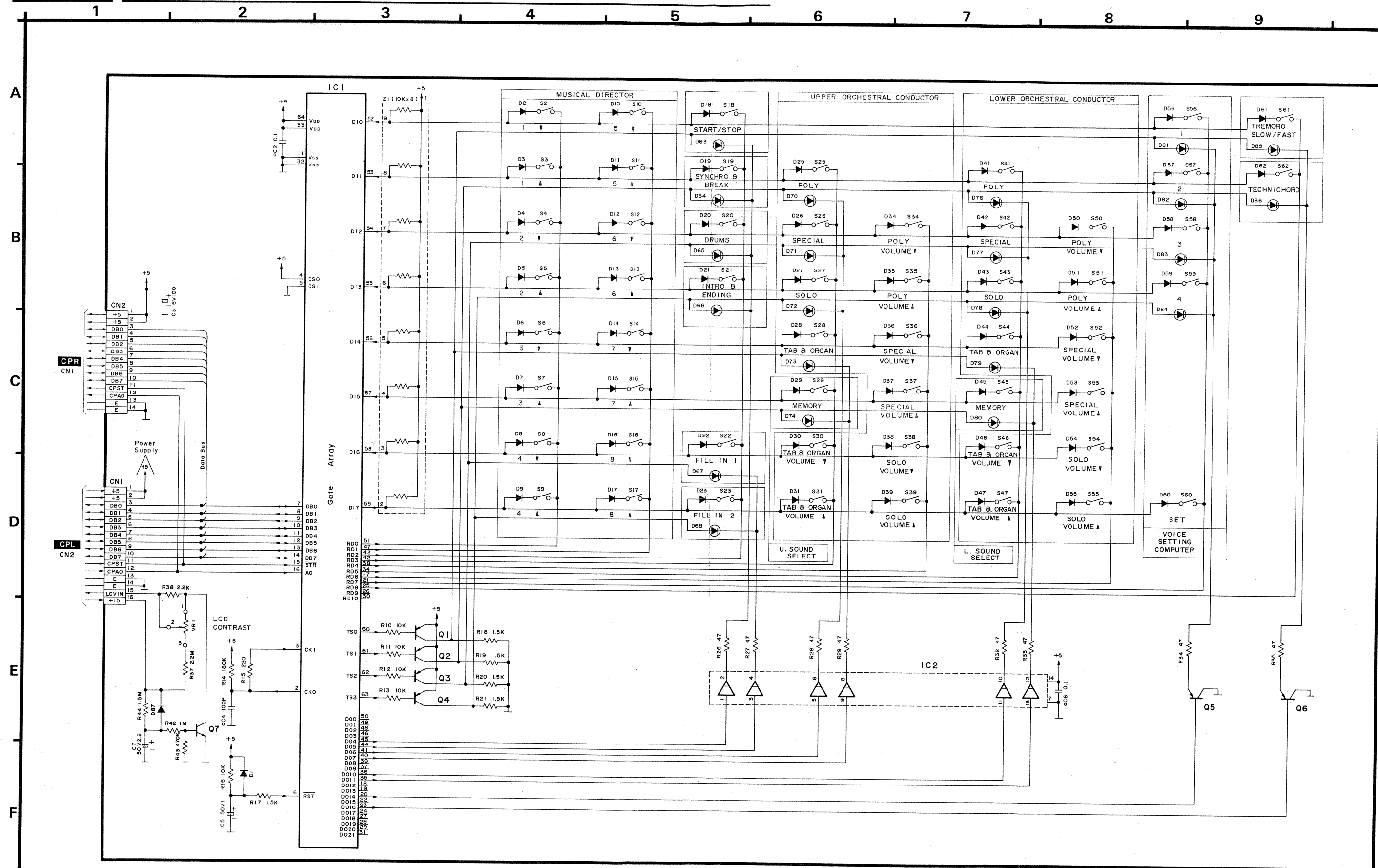
- D99~102, 104, LN282R
- 105:
- D103, 147, 149, LN382G
- 150:

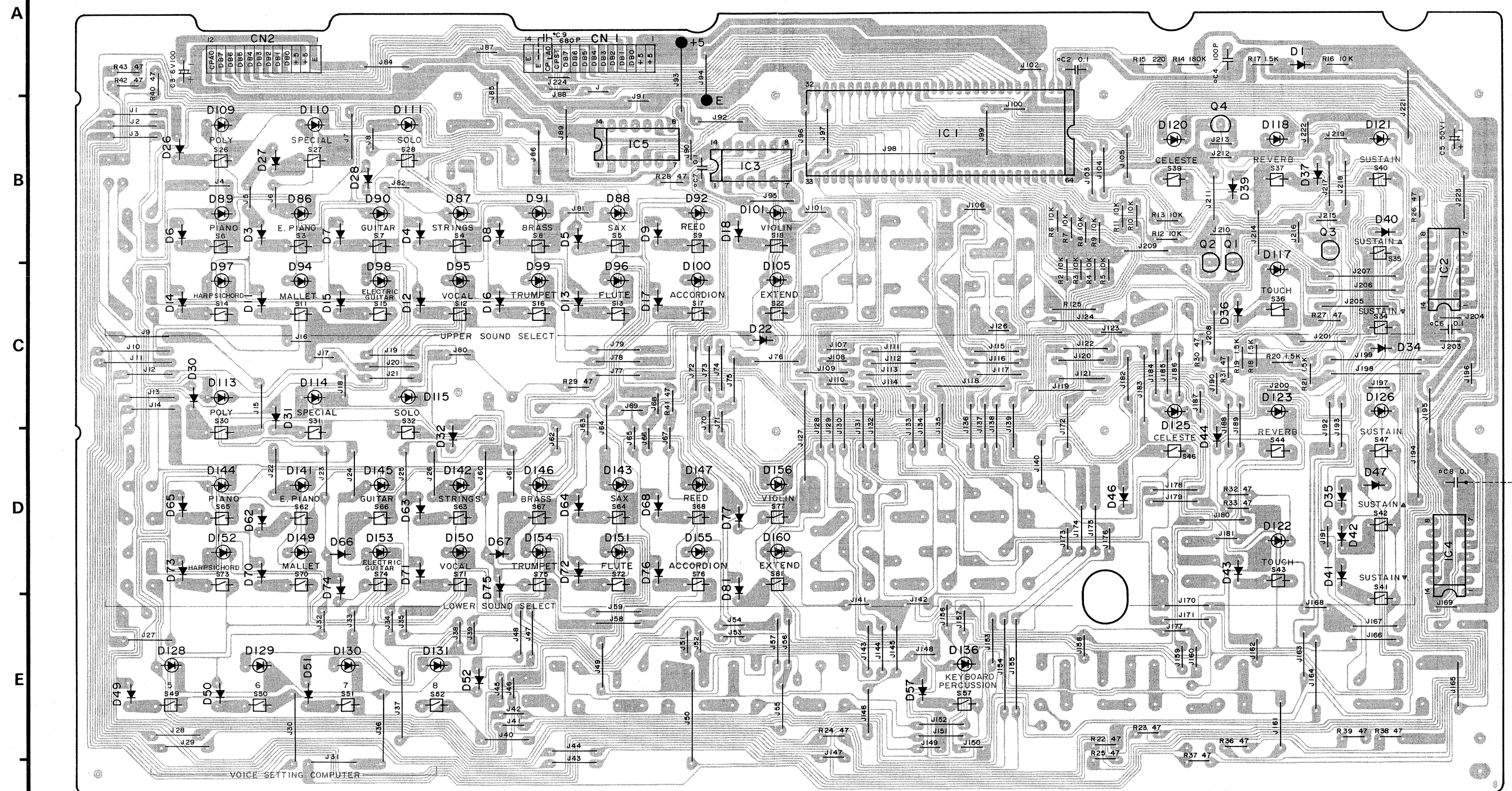
SXPG200731A



NOTES:

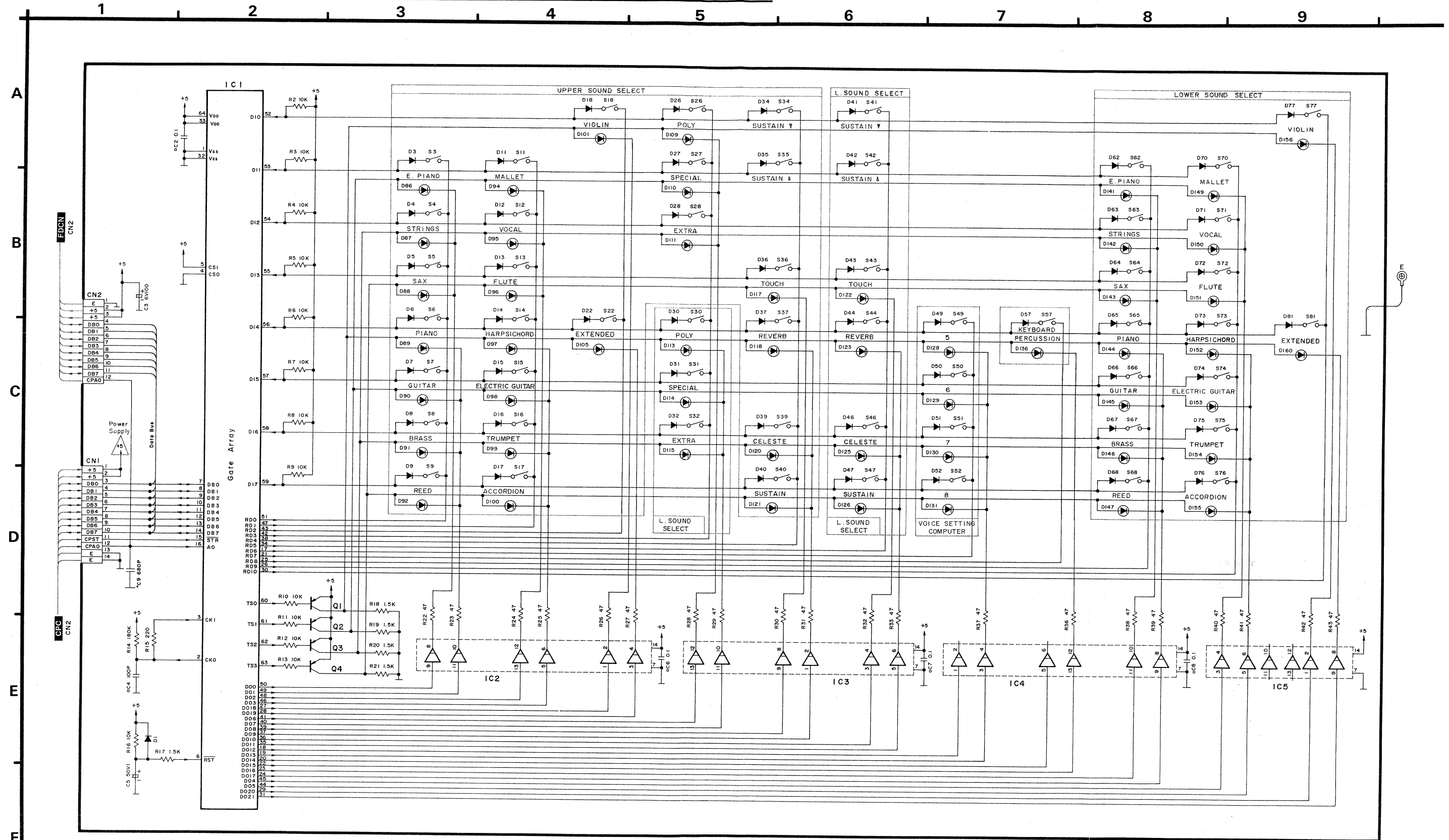
- IC'S
- IC1: SVIGM603A121
- IC2: SVIGM74LS07
- TRANSISTORS
- Q1~6: 2SA830SB
- Q7: 2SC2320LFG
- DIODES
- D1~62: MA165TA5
- D63~73, 76~79, 85, 86: LN282R
- D74, 80~84: LN382G





NOTES:

- IC'S
 - IC1: SVIGM603A121
 - IC2~5: SVIGM74LS07
- TRANSISTORS
 - Q1~4: 2SA830SB
- DIODES
 - D1~81: MA165TA5
 - D86~107, 141~162: SEL2210SM
 - D109~126, 136: LN282R
 - D128~135: LN382G



NOTES:

- IC'S
- IC1: SVIGM603A121
- IC2~5: SVIGM74LS07
- TRANSISTORS
- Q1~4: 2SA830SB

- DIODES
- D1~81: MA165TA5
- D86~107, 141~162: SEL2210SM
- D109~126, 136: LN282R
- D128~135: LN382G

REPLACEMENT PARTS LIST.....P.C.B. and Wiring Parts

Notes:

1. Printed circuit board assembly with mark (NLA) is no longer available after production discontinuation of the complete set.

2. Important safety notice
Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "S" mark is service standard parts and may differ from production parts.

4. $\bigcirc$ mark are new parts.

5. For part No. with area mark, check the area when placing an order.

PRINTED CIRCUIT BOARD

NLA	Area	Part No.	Description	Per/Set
$\bigcirc$ NLA	Δ EZ M XM XL MC	SXPG200171	MAIN	1
$\bigcirc$ NLA	Others	SXPG200131	MAIN	1
$\bigcirc$ NLA		SXPG201411	JACK	1
$\bigcirc$ NLA		SXPG200711E	MVOL	1
$\bigcirc$ NLA		SXPG200711D	FDCN	1
$\bigcirc$ NLA		SXPG201711	DSG	1
$\bigcirc$ NLA		SXPG200921	MKB1	2
$\bigcirc$ NLA		SXPG201011	MKB2	2
$\bigcirc$ NLA	Δ EZ M XM XL MC	SXPG200431	EJII	1
$\bigcirc$ NLA	Others	SXPG200411	EJII	1
$\bigcirc$ NLA		SXPG146021	DRV	1
$\bigcirc$ NLA		SXPG201211	PKB	1
$\bigcirc$ NLA		SXPG103211	EXP	1
$\bigcirc$ NLA	N	S0PG201571A	ACP	1
$\bigcirc$ NLA	Δ M XM MC	S0PG201581A	ACP	1
$\bigcirc$ NLA	Δ EK XL XR	S0PG201531A	ACP	1
$\bigcirc$ NLA	Δ XD XS X			
$\bigcirc$ NLA	Others	S0PG201521A	ACP	1
$\bigcirc$ NLA	Δ M XM MC	SXPG201521B	PSS	1
$\bigcirc$ NLA	Others	SXPG201511B	PSS	1
$\bigcirc$ NLA		SXPG201511C	PSM	1
$\bigcirc$ NLA		SXPG139271	PA	1
$\bigcirc$ NLA		SXPG200711B	CN	1
$\bigcirc$ NLA		SXPG146111	FDC	1
$\bigcirc$ NLA		SXPG200631	CPL	1
$\bigcirc$ NLA		SXPG200711C	ESW	1
$\bigcirc$ NLA		SXPG200531	CPSL	1
$\bigcirc$ NLA		SXPG200731A	CPC	1
$\bigcirc$ NLA		QSLG002AA	LCD	1
$\bigcirc$ NLA		SXPG200831	CPR	1

MAIN MAIN CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGD70320GJ	16 bit Microcomputer	1
IC2	SVIGMB621407	Gate Array	1
IC3	SVIGD656C329	Gate Array	1
IC4	SVIGLH701088	16 bit Microcomputer	1
$\bigcirc$ IC5	QSIGAGN5BX0	1M bit EP ROM	1
$\bigcirc$ IC6	QSIGAGN5AX0	1M bit EP ROM	1
IC7, 15, 105	SVIGHM65256	256K bit Partial S RAM	3
IC8	SVIGM5256BLL	256K bit S RAM	1
$\bigcirc$ IC9	QSIGU3C04742	4M bit Mask ROM	1
$\bigcirc$ IC10	M74HC245P	3-State Buffer	1
IC11~13	SVIGM74HC244	3-State Buffer	3
$\bigcirc$ IC14	QSIGAGN5CX0	1M bit EP ROM	1
IC16	SVIGTLP513	Photo Coupler	1
IC17	SVIGM74LS07	Hex Buffers (O.C.)	1
IC18	SVIGMSM6253	A/D Converter	1
IC19	SVIGM74H138	Decoder	1
$\bigcirc$ IC20	M74HC139P	Decoder	1
IC21	SVIGM74H02	Quad 2-input NOR Gates	1
IC22, 26, 30, 34, 38	MN6635	Tone Generator LSI	5
IC23, 27, 31, 35, 39	SVIGBA9221	12 bit D-A Converter	5
IC24, 28, 32, 36, 40	SVIGM5238L	Operational Amplifier	5
IC25, 29, 33, 37, 41	SVIGTC4051BP	8-channel Multiplexer	5
$\bigcirc$ IC42	QSIGU3C04739	4M bit Mask ROM	1
$\bigcirc$ IC43	QSIGU3C04738	4M bit Mask ROM	1
$\bigcirc$ IC45	QSIGU3C04724	4M bit Mask ROM	1
$\bigcirc$ IC47	QSIGU3C04730	4M bit Mask ROM	1
IC48, 49	SVIGM74HC374	3-state D-type Flip-Flops	2
IC50~89	SVIGM74H4066	Quad Bilateral Switches	40
IC90, 91, 93, 94, 96~98, 101, 104, 111	SVIGM5218L	Operational Amplifier	10
$\bigcirc$ IC99	M74HC174P	Hex D-type Flip-Flops	1
$\bigcirc$ IC102	QSIGU3C04725	4M bit Mask ROM	1
IC108	SVIGM74H00	Quad 2-input NAND Gates	1
IC109	SVIGM74H32	Quad 2-input OR Gates	1
TRANSISTORS			
Q2~4, 16	2SC1047C		4
DIODES			
D1~5, 10, 11, 13, 14, 16	MA165TA5		10
$\bigcirc$ D12	MA4056	Zener, 5.6V	1

Ref. No.	Part No.	Description	Per/Set
OSCILLATORS			
$\bigcirc$ X1	QSGXG1B1400A	14MHz, Quartz Oscillator	1
X2	SVQGA16MX140	16MHz, Ceramic Oscillator	1
X3~5	SVQGA49S1600T	16MHz, Quartz Oscillator	3
COMPONENT COMBINATIONS			
Z1, 4, 9, 10	EXBPI8472JM	4.7K Ω $\times$ 8	4
Z2	EXBPI4472JM	4.7K Ω $\times$ 4	1
Z3, 5~8	EXAMR14A1002	1K Ω /2K Ω , Ladder Network	5
JACKS			
JK1~3	SJSG1370A	MIDI (THRU, OUT, IN)	3
RESISTORS			
R1, 2	ERDS2TJ473	47K Ω	2
R3, 4	ERDS2TJ474	470K Ω	2
R6	ERDS2TJ221	220 Ω	1
R7	ERDS2TJ331	330 Ω	1
R9, 10	ERDS2TJ221	220 Ω	2
R11	ERDS2TJ472	4.7K Ω	1
R12, 13	ERDS2TJ221	220 Ω	2
R15	ERDS2TJ103	10K Ω	1
R16	ERDS2TJ332	3.3K Ω	1
R26	ERDS2TJ472	4.7K Ω	1
R28~31	ERDS2TJ472	4.7K Ω	4
R32	ERDS2TJ331	330 Ω	1
R41	ERDS2TJ154	150K Ω	1
R42, 43	ERDS2TJ101	100 Ω	2
R45, 46	ERDS2TJ472	4.7K Ω	2
R52	ERDS2TJ682	6.8K Ω	1
R54	ERDS2TJ682	6.8K Ω	1
R56	ERDS2TJ103	10K Ω	1
R57, 58	ERDS2TJ472	4.7K Ω	2
R59	ERDS2TJ105	1M Ω	1
R60~62	ERDS2TJ472	4.7K Ω	3
R63, 64	ERDS2TJ473	47K Ω	2
R65, 66	ERDS2TJ472	4.7K Ω	2
R67	Δ ERD2FCJ4R7	4.7 Ω , 1/4W, Fuse Type	1
R69	ERDS2TJ101	100 Ω	1
R82	ERDS2TJ473	47K Ω	1
R83	ERDS2TJ472	4.7K Ω	1
R85, 86	ERDS2TJ471	470 Ω	2
R87	ERDS2TJ183	18K Ω	1
R88	ERDS2TJ333	33K Ω	1
R89, 90	ERDS2TKF4700	470 Ω , $\pm$ 1%	2
R91, 92	ERDS2TJ471	470 Ω	2
R93	ERDS2TJ333	33K Ω	1
R94	ERDS2TJ183	18K Ω	1
R95, 96	ERDS2TKF4700	470 Ω , $\pm$ 1%	2
R97, 98	ERDS2TJ471	470 Ω	2
R99	ERDS2TJ123	12K Ω	1
R100	ERDS2TKF4700	470 Ω , $\pm$ 1%	1
R101, 102	ERDS2TJ472	4.7K Ω	2
R103, 104	ERDS2TJ222	2.2K Ω	2
R105, 106	ERDS2TJ472	4.7K Ω	2
R115, 116	ERDS2TJ104	100K Ω	2
R118~121	ERDS2TJ104	100K Ω	4
R123~126	ERDS2TJ225	2.2M Ω	4
R127~134	ERDS2TJ473	47K Ω	8
R135, 136	ERDS2TJ683	68K Ω	2
R137~152	ERDS2TJ473	47K Ω	16
R153	ERDS2TJ224	220K Ω	1
R154~157	ERDS2TJ334	330K Ω	4
R158	ERDS2TKF4700	470 Ω , $\pm$ 1%	1
R159, 160	ERDS2TJ471	470 Ω	2

Ref. No.	Part No.	Description	Per/Set
R161	ERDS2TJ183	18K Ω	1
R162	ERDS2TJ333	33K Ω	1
R163	ERDS2TKF4700	470 Ω , $\pm$ 1%	1
R164	ERDS2TJ101	100 Ω	1
R165	ERDS2TKF4700	470 Ω , $\pm$ 1%	1
R166, 167	ERDS2TJ471	470 Ω	2
R168	ERDS2TJ333	33K Ω	1
R169	ERDS2TJ183	18K Ω	1
R170	ERDS2TKF4700	470 Ω , $\pm$ 1%	1
R171~186	ERDS2TJ473	47K Ω	16
R187, 188	ERDS2TJ683	68K Ω	2
R193	ERDS2TJ104	100K Ω	1
R195	ERDS2TJ104	100K Ω	1
R198~200	ERDS2TJ104	100K Ω	3
R204~206	ERDS2TJ104	100K Ω	3
R210~212	ERDS2TJ104	100K Ω	3
R216~218	ERDS2TJ104	100K Ω	3
R222, 223	ERDS2TJ472	4.7K Ω	2
R228, 229	Δ ERD2FCJ4R7	4.7 Ω , 1/4W, Fuse Type	2
R230, 231	Δ ERQ14AJ2R0P	2 Ω , 1/4W, Fuse Type	2
R239	ERDS2TKF4700	470 Ω , $\pm$ 1%	1
R240	ERDS2TJ104	100K Ω	1
R244	ERDS2TJ103	10K Ω	1
R245, 246	ERDS2TJ472	4.7K Ω	2
R248	ERDS2TJ472	4.7K Ω	1
R250~254	ERDS2TJ101	100 Ω	5
R256~288	ERDS2TJ101	100 Ω	33
R289	ERDS2TJ103	10K Ω	1
CAPACITORS			
C1, 2	ECQG1H102KZ	0.001 μ F	2
C3, 4	ECKR1E473ZV	0.047 μ F	2
C7	ECEA1HKA010	1 μ F, 50V	1
C8, 9	ECCR1H220J	22pF	2
C10	ECEA0JKA331	330 μ F, 6.3V	1
C11, 12	ECKR1E473ZV	0.047 μ F	2
C16, 17	ECRR1H104ZF	0.1 μ F	2
C18	EECF5R5U105	1F, 5.5V, Memory Back-up	1
C19	ECEA0JKA101	100 μ F, 6.3V	1
C20	ECCR1H470J	47pF	1
C22	ECCR1H680J	68pF	1
C23	ECRR1H104ZF	0.1 μ F	1
C24, 25	ECKR1E473ZV	0.047 μ F	2
C27, 28	ECCR1H220J	22pF	2
C29~31	ECKR1E473ZV	0.047 μ F	3
C32	EECF5R5U105	1F, 5.5V, Memory Back-up	1
C33	ECKR1E473ZV	0.047 μ F	1
C34, 35	ECSF1EE225	2.2 μ F, 25V	2
C36	ECCR1H221J	220pF	1
C37, 38	ECRR1H220J	22pF	2
C39	ECEA0JKA331	330 μ F, 6.3V	1
C40	ECRR1H104ZF	0.1 μ F	1
C42	ECSF1EE225	2.2 μ F, 25V	1
C43	ECCR1H221J	220pF	1
C44	ECEA0JKA331	330 μ F, 6.3V	1
C45	ECRR1H104ZF	0.1 μ F	1
C46	ECEA0JKA331	330 μ F, 6.3V	1
C47	ECSF1EE225	2.2 μ F, 25V	1
C48	ECSF1VE106	10 μ F, 35V	1
C49	ECCR1H221J	220pF	1
C50	ECEA0JKA331	330 μ F, 6.3V	1
C51	ECRR1H104ZF	0.1 μ F	1
C52	ECEA0JKA331	330 μ F, 6.3V	1
C53, 54	ECCR1H220J	22pF	2
C55	ECKR1E473ZV	0.047 μ F	1
C58~61	ECQV1H104JZ	0.1 μ F	4
C62	ECQG1H472KZ	0.0047 μ F	1

Ref. No.	Part No.	Description	Per/Set	Ref. No.	Part No.	Description	Per/Set
C63	ECQG1H102KZ	0.001μF	1	C145	ECCR1H470J	47pF	1
C64	ECQG1H472KZ	0.0047μF	1	C146, 147	ECSF1EE225	2.2μF, 25V	2
C65	ECQG1H102KZ	0.001μF	1	C149	ECCR1H221J	220pF	1
C66	ECQG1H472KZ	0.0047μF	1	C150, 151	ECEA0JKA331	330μF, 6.3V	2
C67	ECQG1H102KZ	0.001μF	1	C152, 153	ECCR1H220J	22pF	2
C68	ECQG1H472KZ	0.0047μF	1	C154	ECSF1EE225	2.2μF, 25V	1
C69	ECQG1H102KZ	0.001μF	1	C155	ECCR1H221J	220pF	1
C70	ECQG1H472KZ	0.0047μF	1	C156, 157	ECEA0JKA331	330μF, 6.3V	2
C71	ECQG1H102KZ	0.001μF	1	C158	ECQG1H472KZ	0.0047μF	1
C72	ECQG1H472KZ	0.0047μF	1	C159	ECQG1H102KZ	0.001μF	1
C73	ECQG1H102KZ	0.001μF	1	C160	ECQG1H472KZ	0.0047μF	1
C74	ECQG1H472KZ	0.0047μF	1	C161	ECQG1H102KZ	0.001μF	1
C75	ECQG1H102KZ	0.001μF	1	C162	ECQG1H472KZ	0.0047μF	1
C76	ECQG1H472KZ	0.0047μF	1	C163	ECQG1H102KZ	0.001μF	1
C77	ECQG1H102KZ	0.001μF	1	C164	ECQG1H472KZ	0.0047μF	1
C78	ECEA0JKA331	330μF, 6.3V	1	C165	ECQG1H102KZ	0.001μF	1
C79	ECSF1EE225	2.2μF, 25V	1	C166	ECQG1H472KZ	0.0047μF	1
C80	ECKR1E473ZV	0.047μF	1	C167	ECQG1H102KZ	0.001μF	1
C82	ECKR1E473ZV	0.047μF	1	C168	ECQG1H472KZ	0.0047μF	1
C84, 85	ECKR1E473ZV	0.047μF	2	C169	ECQG1H102KZ	0.001μF	1
C87	ECKR1E473ZV	0.047μF	1	C170	ECQG1H472KZ	0.0047μF	1
C88	ECCR1H470J	47pF	1	C171	ECQG1H102KZ	0.001μF	1
C89	ECQG1H472KZ	0.0047μF	1	C172	ECQG1H472KZ	0.0047μF	1
C90	ECQG1H102KZ	0.001μF	1	C173	ECQG1H102KZ	0.001μF	1
C91	ECQG1H472KZ	0.0047μF	1	C174	ECKR1E473ZV	0.047μF	1
C92	ECQG1H102KZ	0.001μF	1	C176	ECKR1E473ZV	0.047μF	1
C93	ECQG1H472KZ	0.0047μF	1	C178	ECKR1E473ZV	0.047μF	1
C94	ECQG1H102KZ	0.001μF	1	C180	ECKR1E473ZV	0.047μF	1
C95	ECQG1H472KZ	0.0047μF	1	C181	ECQG1H472KZ	0.0047μF	1
C96	ECQG1H102KZ	0.001μF	1	C182	ECQG1H102KZ	0.001μF	1
C97	ECQG1H472KZ	0.0047μF	1	C183	ECQG1H472KZ	0.0047μF	1
C98	ECQG1H102KZ	0.001μF	1	C184	ECQG1H102KZ	0.001μF	1
C99	ECQG1H472KZ	0.0047μF	1	C185	ECQG1H472KZ	0.0047μF	1
C100	ECQG1H102KZ	0.001μF	1	C186	ECQG1H102KZ	0.001μF	1
C101	ECQG1H472KZ	0.0047μF	1	C188	ECQG1H472KZ	0.0047μF	1
C102	ECQG1H102KZ	0.001μF	1	C189	ECQG1H102KZ	0.001μF	1
C103	ECQG1H472KZ	0.0047μF	1	C190	ECQG1H472KZ	0.0047μF	1
C104	ECQG1H102KZ	0.001μF	1	C191	ECQG1H102KZ	0.001μF	1
C105	ECKR1E473ZV	0.047μF	1	C192	ECQG1H472KZ	0.0047μF	1
C107	ECKR1E473ZV	0.047μF	1	C193	ECQG1H102KZ	0.001μF	1
C109	ECKR1E473ZV	0.047μF	1	C194	ECQG1H472KZ	0.0047μF	1
C111	ECKR1E473ZV	0.047μF	1	C195	ECQG1H102KZ	0.001μF	1
C113	ECQG1H472KZ	0.0047μF	1	C196	ECQG1H472KZ	0.0047μF	1
C114	ECQG1H102KZ	0.001μF	1	C197	ECQG1H102KZ	0.001μF	1
C115	ECQG1H472KZ	0.0047μF	1	C198	ECKR1E473ZV	0.047μF	1
C116	ECQG1H102KZ	0.001μF	1	C200	ECKR1E473ZV	0.047μF	1
C117	ECQG1H472KZ	0.0047μF	1	C202	ECKR1E473ZV	0.047μF	1
C118	ECQG1H102KZ	0.001μF	1	C204	ECKR1E473ZV	0.047μF	1
C119	ECQG1H472KZ	0.0047μF	1	C205	ECSF1EE225	2.2μF, 25V	1
C120	ECQG1H102KZ	0.001μF	1	C206	ECQG1H152KZ	0.0015μF	1
C121	ECQG1H472KZ	0.0047μF	1	C210	ECCR1H470J	47pF	1
C122	ECQG1H102KZ	0.001μF	1	C211	ECQG1H152KZ	0.0015μF	1
C123	ECQG1H472KZ	0.0047μF	1	C215	ECCR1H470J	47pF	1
C124	ECQG1H102KZ	0.001μF	1	C216	ECQG1H332KZ	0.0033μF	1
C125	ECQG1H472KZ	0.0047μF	1	C220	ECCR1H470J	47pF	1
C126	ECQG1H102KZ	0.001μF	1	C221	ECQG1H152KZ	0.0015μF	1
C127	ECQG1H472KZ	0.0047μF	1	C225	ECCR1H470J	47pF	1
C128	ECQG1H102KZ	0.001μF	1	C226	ECQG1H152KZ	0.0015μF	1
C129	ECKR1E473ZV	0.047μF	1	C230	ECEA0JKA101	100μF, 6.3V	1
C131	ECKR1E473ZV	0.047μF	1	C234	ECEA0JKA331	330μF, 6.3V	1
C133	ECKR1E473ZV	0.047μF	1	C235, 236	ECEA1CKA101	100μF, 16V	2
C135, 136	ECKR1E473ZV	0.047μF	2	C237	ECEA0JKA331	330μF, 6.3V	1
C137	ECSF1VE106	10μF, 35V	1	C239	ECQV1H104JZ	0.1μF	1
C138	ECQV1H104JZ	0.1μF	1	C241	ECQV1H104JZ	0.1μF	1
C140, 141	ECQV1H104JZ	0.1μF	2	C245	ECCR1H101J	100pF	1
C142	ECCR1H471J	470pF	1	C246	ECQV1H474JZ	0.47μF	1
C143	ECCR1H470J	47pF	1	C247	ECKR1E473ZV	0.047μF	1
C144	ECCR1H471J	470pF	1	C248	ECSF1EE225	2.2μF, 25V	1

Ref. No.	Part No.	Description	Per/Set
C250, 251	ECKR1E473ZV	0.047μF	2
C254	ECSF1EE225	2.2μF, 25V	1
C256	ECSF1EE225	2.2μF, 25V	1
C257	ECKR1E473ZV	0.047μF	1
C258	ECRR1H104ZF	0.1μF	1
C259	ECSF1EE225	2.2μF, 25V	1
C261	ECKR1E473ZV	0.047μF	1
C262	ECRR1H104ZF	0.1μF	1
C265~273	ECKR1E473ZV	0.047μF	9
C276, 277	ECKR1E473ZV	0.047μF	2
C279	ECKR1E473ZV	0.047μF	1
C281~284	ECKR1E473ZV	0.047μF	4
C285	ECQG1H102KZ	0.001μF	1
C286~288	ECKR1E473ZV	0.047μF	3
C289	ECCR1H331J	330pF	1
C291	ECKR1E473ZV	0.047μF	1
C292	ECRR1H104ZF	0.1μF	1
C293	ECSF1EE225	2.2μF, 25V	1
C294	ECRR1H104ZF	0.1μF	1
C295, 296	ECKR1E473ZV	0.047μF	2
C297, 298	ECRR1H104ZF	0.1μF	2

Ref. No.	Part No.	Description	Per/Set
CAPACITORS			
C1, 2	ECEA1EKA470	47μF, 25V	2
C3, 8	ECEA1HKN010	1μF, 50V	2
C4, 5	ECCR1H101J	100pF	2
C6, 7	ECKR1E473ZV	0.047μF	2

MVOL MAIN VOLUME CIRCUIT

Ref. No.	Part No.	Description	Per/Set
VARIABLE RESISTOR			
VR1	EVD06510B24G	20KΩ B, Main Volume	1
CAPACITOR			
C1	ECKR1E473ZV	0.047μF	1

DSG DIGITAL SOUND GENERATOR CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	MN6635	Tone Generator LSI	1
IC2	QSIGU3C04732	4M bit Mask ROM	1
IC3	SVIGBA9221	12 bit D-A Converter	1
IC4	SVIGTC4051BP	8-channel Multiplexer	1
IC5	SVIGM5238L	Operational Amplifier	1
IC7~14	SVIGM74H4066	Quad Bilateral Switches	8
IC15, 16	SVIGM5218L	Operational Amplifier	2
OSCILLATORS			
X1	SVQG49S1600T	16MHz, Quartz Oscillator	1
COMPONENT COMBINATIONS			
Z1	EXAMR14A1002	1KΩ/2KΩ, Ladder Network	1
RESISTORS			
R1, 2	ERDS2TJ471	470Ω	2
R3, 4	ER0S2TKF4700	470Ω, ±1%	2
R5	ERDS2TJ153	15KΩ	1
R6~13	ERDS2TJ473	47KΩ	8
R14, 15	ERDS2TJ472	4.7KΩ	2
R17, 18	ERDS2TJ154	150KΩ	2
R19	ERDS2TJ683	68KΩ	1
R20~22	ERDS2TJ820	82Ω	3
CAPACITORS			
C1, 2	ECCR1H100J	10pF	2
C3	ECSF1EE225	2.2μF, 25V	1
C4	ECSF1EE106	10μF, 25V	1
C5	ECEA0JKA101	100μF, 6.3V	1
C6	ECCR1H220J	22pF	1
C7	ECKR1E473ZV	0.047μF	1
C8	ECEA0JKA101	100μF, 6.3V	1
C9	ECKR1E473ZV	0.047μF	1

JACK JACK CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUIT			
IC1	SVIGM5218L	Operational Amplifier	1
JACKS			
JK1, 2	SJJG470A	Line Out (R, L)	1
JK3	SJJG210A	Microphone	1
JK4	SJJG100A	Headphones	1
VARIABLE RESISTOR			
VR1	EWHD5A576A54	50KΩ A, Mic Volume	1
RESISTORS			
R1, 2	ERD2FCG100	10Ω, 1/4W, Fuse Type	2
R3	ERDS2TJ222	2.2KΩ	1
R4	ERDS2TJ472	4.7KΩ	1
R5	ERDS2TJ102	1KΩ	1
R6	ERDS2TJ222	2.2KΩ	1
R7	ERDS2TJ102	1KΩ	1
R8	ERDS2TJ472	4.7KΩ	1
R9	ERDS2TJ224	220KΩ	1
R10	ERDS2TJ103	10KΩ	1
R11	ERDS2TJ224	220KΩ	1
R12	ERDS2TJ103	10KΩ	1
R13	ERDS2TJ154	150KΩ	1
R14	ERDS2TJ102	1KΩ	1
R15, 16	ERG1ANJP680S	68Ω, 1W, Flame-Proof	2
R18, 19	ERDS2TJ332	3.3KΩ	2

Ref. No.	Part No.	Description	Per/Set
C10	ECEA0JKA470	47 μ F, 6.3V	1
C12	ECKR1E473ZV	0.047 μ F	1
C16	ECKR1E473ZV	0.047 μ F	1
C20~27	ECQG1H472KZ	0.0047 μ F	8
C28~35	ECQG1H102KZ	0.001 μ F	8
C36~38	ECQG1H152KZ	0.0015 μ F	3
C44	ECKR1E473ZV	0.047 μ F	1
C46, 47	ECKR1E473ZV	0.047 μ F	2
C49	ECKR1E473ZV	0.047 μ F	1
C50, 51	ECEA0JKA331	330 μ F, 6.3V	2
C52	ECCR1H101J	100pF	1

MKB1 MANUAL KEYBOARD 1 CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	MN50020PGV	Gate Array	1
IC2	MN1231	1K bit ROM	1
DIODES			
S D1~74	MA162A	MA150IR (SUB. Part)	74
OSCILLATOR			
X1	EF0FC4004A3	4MHz, Ceramic Oscillator	1
COMPONENT COMBINATION			
Z1	EXBPI8472JM	4.7K Ω × 8	1
RESISTORS			
R1	ERDS2TJ222	2.2K Ω	1
R2	ERDS2TJ472	4.7K Ω	1
CAPACITOR			
C1	ECRR1H104ZF	0.1 μ F	1

MKB2 MANUAL KEYBOARD 2 CIRCUIT

Ref. No.	Part No.	Description	Per/Set
DIODES			
S D1~24	MA162A	MA150IR (SUB. Part)	24

EJ II EFFECT, MIXING & JACK II CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGTC4051BP	8-channel Multiplexer	1
IC2	SVIG65002018	Gate Array	1

Ref. No.	Part No.	Description	Per/Set
IC3	M66240P	PWM Generator	1
IC4, 5, 42	SVIGTC4053BP	2-channel Multiplexer	3
IC6~8, 15, 19, 21, 24~28, 33, 38~40, 43~50, 52, 53	SVIGM5218L	Operational Amplifier	25
IC9, 16, 20, 22, 36, 37	SVIGUPC1252H	VCA	6
IC10, 23	SVIGUPC1253H	RMS Level Sensor	2
IC11, 13, 17, 29, 30	SVIGMSM4011	2-input NAND Gate	5
IC12, 14, 18	MN3004	BBD (512 stages)	3
IC31, 32	MN3006	BBD (128 stages)	2
IC34, 35	SVIGBA6110	VCA	2
IC41	SVIGLM1894N	Dynamic Noise Reduction	1
IC51	SVIGM74H04	Hex Inverters	1

TRANSISTORS

S Q1, 3, 4, 7, 8, 12, 13, 20~26, 28, 30	2SC2320LFG	2SC1310FG (SUB. Part)	16
S Q2, 5, 6, 9, 10, 11, 29	2SA1015-GR	2SA933STRS (SUB. Part)	6
Q14, 16	2SC3940AR		2
Q15, 17	2SA1534AR		2
Q18, 19	2SJ105GR	FET	2

DIODES

D1	MA4062	Zener, 6.2V	1
D2	SVDGRK14S	Diode	1
D3~21	MA165TA5		19

OSCILLATORS

X1	SVQG49S1200T	12MHz, Quartz Oscillator	1
----	--------------	--------------------------	---

COILS

L1, 2	SLQG15W34DPQ	Coil	2
-------	--------------	------	---

JACKS

JK1~4	SJJG400A	LINE OUT, AUX IN	4
-------	----------	------------------	---

SEMI-FIXED RESISTORS

VR1, 2	EVND4AA00B24	20K Ω B, BBD Bias	2
VR3	EVND4AA00B14	10K Ω B, Offset Adj.	1

RESISTORS

R1~6	ERDS2TJ102	1K Ω	6
R7	ERDS2TJ683	68K Ω	1
R8	ERDS2TJ101	100 Ω	1
R9~13	ERDS2TJ682	6.8K Ω	5
R14	ERDS2TJ563	56K Ω	1
R15	ERDS2TJ682	6.8K Ω	1
R16	ERDS2TJ563	56K Ω	1
R17	ERDS2TJ682	6.8K Ω	1
R18	ERDS2TJ563	56K Ω	1
R19	ERDS2TJ103	10K Ω	1
R20	ERDS2TJ563	56K Ω	1

Ref. No.	Part No.	Description	Per/Set	Ref. No.	Part No.	Description	Per/Set
R21	ERDS2TJ103	10K Ω	1	R111	ERDS2TJ104	100K Ω	1
R22	ERDS2TJ563	56K Ω	1	R112, 113	ERDS2TJ224	220K Ω	2
R23	ERDS2TJ103	10K Ω	1	R114	ERDS2TJ104	100K Ω	1
R24, 25	ERDS2TJ332	3.3K Ω	2	R115	ERDS2TJ224	220K Ω	1
R26, 27	ERDS2TJ102	1K Ω	2	R116	ERDS2TJ154	150K Ω	1
R28	ERDS2TJ332	3.3K Ω	1	R117	ERDS2TJ224	220K Ω	1
R29~31	ERDS2TJ103	10K Ω	3	R118	ERDS2TJ474	470K Ω	1
R32~34	ERDS2TJ104	100K Ω	3	R119	ERDS2TJ224	220K Ω	1
R35	ERDS2TJ331	330 Ω	1	R121, 122	ERDS2TJ224	220K Ω	2
R36	ERDS2TJ153	15K Ω	1	R127	ERDS2TJ334	330K Ω	1
R37	ERDS2TJ331	330 Ω	1	R128~130	ERDS2TJ104	100K Ω	3
R38	ERDS2TJ153	15K Ω	1	R131	ERDS2TJ563	56K Ω	1
R39	ERDS2TJ331	330 Ω	1	R132, 133	ERDS2TJ472	4.7K Ω	2
R40	ERDS2TJ153	15K Ω	1	R134	ERDS2TJ331	330 Ω	1
R41	ERDS2TJ104	100K Ω	1	R135	ERDS2TJ152	1.5K Ω	1
R42	ERDS2TJ102	1K Ω	1	R136	ERDS2TJ102	1K Ω	1
R43	ERDS2TJ473	47K Ω	1	R137	ERDS2TJ331	330 Ω	1
R44~46	ERDS2TJ274	270K Ω	3	R138	ERDS2TJ223	22K Ω	1
R47	ERDS2TJ332	3.3K Ω	1	R139	ERDS2TJ333	33K Ω	1
R48	ERDS2TJ472	4.7K Ω	1	R140	ERDS2TJ223	22K Ω	1
R49	ERDS2TJ332	3.3K Ω	1	R141	ERDS2TJ103	10K Ω	1
R50, 51	ERDS2TJ223	22K Ω	2	R142	ERDS2TJ223	22K Ω	1
R52	ERDS2TJ154	150K Ω	1	R143	ERDS2TJ333	33K Ω	1
R53	ERDS2TJ474	470K Ω	1	R144	ERDS2TJ223	22K Ω	1
R54	ERDS2TJ100	10 Ω	1	R145	ERDS2TJ103	10K Ω	1
R55	ERDS2TJ101	100 Ω	1	R146, 147	ERDS2TJ683	68K Ω	2
R56	ERDS2TJ105	1M Ω	1	R149	ERDS2TJ222	2.2K Ω	1
R58	ERDS2TJ473	47K Ω	1	R150	ERDS2TJ101	100 Ω	1
R59	ERDS2TJ154	150K Ω	1	R151, 152	ERDS2TJ223	22K Ω	2
R60, 61	ERDS2TJ332	3.3K Ω	2	R153	ERDS2TJ101	100 Ω	1
R62, 63	ERDS2TJ154	150K Ω	2	R154	ERDS2TJ222	2.2K Ω	1
R64, 65	ERDS2TJ332	3.3K Ω	2	R156	ERDS2TJ332	3.3K Ω	1
R66, 67	ERDS2TJ154	150K Ω	2	R157	ERDS2TJ472	4.7K Ω	1
R68, 69	ERDS2TJ332	3.3K Ω	2	R158	ERDS2TJ332	3.3K Ω	1
R70, 71	ERDS2TJ154	150K Ω	2	R159	ERDS2TJ102	1K Ω	1
R72	ERDS2TJ153	15K Ω	1	R160	ERDS2TJ332	3.3K Ω	1
R73	ERDS2TJ103	10K Ω	1	R161	ERDS2TJ472	4.7K Ω	1
R74	ERDS2TJ333	33K Ω	1	R162, 163	ERDS2TJ104	100K Ω	2
R75	△ ERD2FCG220	22 Ω , 1/4W, Fuse Type	1	R164	ERDS2TJ393	39K Ω	1
R76	ERDS2TJ154	150K Ω	1	R165	ERDS2TJ223	22K Ω	1
R77	ERDS2TJ153	15K Ω	1	R166	ERDS2TJ333	33K Ω	1
R78	ERDS2TJ103	10K Ω	1	R167	ERDS2TJ103	10K Ω	1
R79	ERDS2TJ333	33K Ω	1	R168, 169	ERDS2TJ104	100K Ω	2
R80	△ ERD2FCG220	22 Ω , 1/4W, Fuse Type	1	R170, 171	ERDS2TJ154	150K Ω	2
R81	ERDS2TJ683	68K Ω	1	R172	ERDS2TJ333	33K Ω	1
R82	ERDS2TJ333	33K Ω	1	R173, 174	ERDS2TJ683	68K Ω	2
R83	ERDS2TJ154	150K Ω	1	R175	ERDS2TJ154	150K Ω	1
R84	ERDS2TJ332	3.3K Ω	1	R177, 178	ERDS2TJ104	100K Ω	2
R85	ERDS2TJ472	4.7K Ω	1	R179	ERDS2TJ333	33K Ω	1
R86	ERDS2TJ103	10K Ω	1	R180	ERDS2TJ223	22K Ω	1
R87	ERDS2TJ153	15K Ω	1	R181	ERDS2TJ273	27K Ω	1
R88	ERDS2TJ103	10K Ω	1	R182	ERDS2TJ103	10K Ω	1
R89	ERDS2TJ154	150K Ω	1	R183	ERDS2TJ104	100K Ω	1
R90	△ ERD2FCG220	22 Ω , 1/4W, Fuse Type	1	R184, 185	ERDS2TJ154	150K Ω	2
R91	ERDS2TJ333	33K Ω	1	R186	ERDS2TJ104	100K Ω	1
R92	ERDS2TJ683	68K Ω	1	R187	ERDS2TJ333	33K Ω	1
R93	ERDS2TJ333	33K Ω	1	R188, 189	ERDS2TJ153	15K Ω	2
R94	ERDS2TJ472	4.7K Ω	1	R190	ERDS2TJ333	33K Ω	1
R95~97	ERDS2TJ473	47K Ω	3	R191, 192	ERDS2TJ472	4.7K Ω	2
R98	ERDS2TJ472	4.7K Ω	1	R193~196	ERDS2TJ100	10 Ω	4
R99~101	ERDS2TJ473	47K Ω	3	R197, 198	ERDS2TJ472	4.7K Ω	2
R102	ERDS2TJ472	4.7K Ω	1	R199	ERDS2TJ104	100K Ω	1
R103~105	ERDS2TJ473	47K Ω	3	R200	ERDS2TJ473	47K Ω	1
R106	ERDS2TJ103	10K Ω	1	R201	ERDS2TJ223	22K Ω	1
R107	ERDS2TJ224	220K Ω	1	R202	ERDS2TJ154	150K Ω	1
R108	ERDS2TJ154	150K Ω	1	R203, 204	ERDS2TJ332	3.3K Ω	2
R109	ERDS2TJ224	220K Ω	1	R205	ERDS2TJ154	150K Ω	1
R110	ERDS2TJ474	470K Ω	1	R206, 207	ERDS2TJ473	47K Ω	2

Ref. No.	Part No.	Description	Per/Set	Ref. No.	Part No.	Description	Per/Set
R208, 209	ERDS2TJ223	22 KΩ	2	R298	ERDS2TJ472	4.7 KΩ	1
R210	ERDS2TJ154	150 KΩ	1	R299	ERDS2TJ102	1 KΩ	1
R211	ERDS2TJ153	15 KΩ	1	R300	ERDS2TJ103	10 KΩ	1
R212	ERDS2TJ103	10 KΩ	1	R301	ERDS2TJ103	10 KΩ	1
R213	ERDS2TJ333	33 KΩ	1	R302	ERDS2TJ154	150 KΩ	1
R214	△ ERD2FCG220	22Ω, 1/4W, Fuse Type	1	R303	ERDS2TJ224	220 KΩ	1
R215~219	ERDS2TJ333	33 KΩ	5	R304, 305	ERDS2TJ473	47 KΩ	2
R220	△ ERD2FCG220	22Ω, 1/4W, Fuse Type	1	R306	△ ERD2FCJ4R7	4.7Ω, 1/4W, Fuse Type	1
R221	ERDS2TJ154	150 KΩ	1	R307, 308	ERDS2TJ222	2.2 KΩ	2
R222	ERDS2TJ153	15 KΩ	1	R309	ERDS2TJ101	100Ω	1
R223	ERDS2TJ103	10 KΩ	1	R310	ERDS2TJ103	10 KΩ	1
R224	ERDS2TJ154	150 KΩ	1	R311	ERDS2TJ472	4.7 KΩ	1
R225, 226	ERDS2TJ332	3.3 KΩ	2	R312	ERDS2TJ102	1 KΩ	1
R227	ERDS2TJ154	150 KΩ	1	R319	ERDS2TJ102	1 KΩ	1
R228	ERDS2TJ223	22 KΩ	1	R320, 321	ERDS2TJ333	33 KΩ	2
R229	ERDS2TJ682	6.8 KΩ	1	R322	ERDS2TJ105	1 MΩ	1
R230~234	ERDS2TJ472	4.7 KΩ	5	R323	ERDS2TJ333	33 KΩ	1
R235, 236	ERDS2TJ102	1 KΩ	2	R324, 325	ERDS2TJ222	2.2 KΩ	2
R237	ERDS2TJ104	100 KΩ	1	R326	ERDS2TJ152	1.5 KΩ	1
R238	ERDS2TJ473	47 KΩ	1	R327	ERDS2TJ151	150Ω	1
R239	ERDS2TJ103	10 KΩ	1	R328	ERDS2TJ221	220Ω	1
R240	ERDS2TJ104	100 KΩ	1	R329, 330	ERDS2TJ333	33 KΩ	2
R241, 242	ERDS2TJ102	1 KΩ	2	R331	ERDS2TJ102	1 KΩ	1
R243	ERDS2TJ103	10 KΩ	1	R332, 333	ERDS2TJ333	33 KΩ	2
R244	ERDS2TJ473	47 KΩ	1	R334	ERDS2TJ102	1 KΩ	1
R245	ERDS2TJ333	33 KΩ	1	R335, 336	ERDS2TJ333	33 KΩ	2
R246, 247	ERDS2TJ473	47 KΩ	2	R337	ERDS2TJ471	470Ω	1
R248	ERDS2TJ333	33 KΩ	1	R338, 339	ERDS2TJ333	33 KΩ	2
R249	ERDS2TJ473	47 KΩ	1	R340	ERDS2TJ471	470Ω	1
R250	ERDS2TJ333	33 KΩ	1	R341, 342	ERDS2TJ333	33 KΩ	2
R251	ERDS2TJ332	3.3 KΩ	1	R343	ERDS2TJ471	470Ω	1
R252	ERDS2TJ472	4.7 KΩ	1	R344, 345	ERDS2TJ333	33 KΩ	2
R253	ERDS2TJ103	10 KΩ	1	R346	ERDS2TJ102	1 KΩ	1
R254	ERDS2TJ332	3.3 KΩ	1	R347, 348	ERDS2TJ333	33 KΩ	2
R255	ERDS2TJ472	4.7 KΩ	1	R349~351	ERDS2TJ102	1 KΩ	3
R256	ERDS2TJ103	10 KΩ	1	R352	ERDS2TJ105	1 MΩ	1
R257	ERDS2TJ332	3.3 KΩ	1	R360	ERDS2TJ822	8.2 KΩ	1
R258	ERDS2TJ472	4.7 KΩ	1	CAPACITORS			
R259	ERDS2TJ332	3.3 KΩ	1	C5, 6	ECEA1HKN010	1μF, 50V	2
R260	ERDS2TJ154	150 KΩ	1	C8, 9	ECQG1H332KZ	0.0033μF	2
R261	ERDS2TJ105	1 MΩ	1	C10~12	ECQG1H472KZ	0.0047μF	3
R262	ERDS2TJ100	10Ω	1	C13, 14	ECCR1H470J	47 pF	2
R263	ERDS2TJ101	100Ω	1	C15~17	ECCR1H680J	68 pF	3
R264	ERDS2TJ474	470 KΩ	1	C18, 19	ECQG1H332KZ	0.0033μF	2
R266	ERDS2TJ222	2.2 KΩ	1	C20, 21	ECQB1H223JZ	0.022μF	2
R267	ERDS2TJ332	3.3 KΩ	1	C22	ECQG1H682KZ	0.0068μF	1
R268, 269	△ ERD2FCJ4R7	4.7Ω, 1/4W, Fuse Type	2	C23~25	ECEA1HKA2R2	2.2μF, 50V	3
R270, 271	ERDS2TJ102	1 KΩ	2	C26	ECEA1CKA100	10μF, 16V	1
R272, 273	ERDS2TJ473	47 KΩ	2	C27~29	ECEA1HKA2R2	2.2μF, 50V	3
R275	ERDS2TJ223	22 KΩ	1	C30	ECEA1HKN010	1μF, 50V	1
R276	ERDS2TJ102	1 KΩ	1	C31	ECQG1H472KZ	0.0047μF	1
R277	ERDS2TJ221	220Ω	1	C32	ECQV1H104JZ	0.1μF	1
R278	ERDS2TJ222	2.2 KΩ	1	C33	ECEA1HKA010	1μF, 50V	1
R279	ERDS2TJ102	1 KΩ	1	C34	ECEA1CKA100	10μF, 16V	1
R280	ERDS2TJ473	47 KΩ	1	C35~41	ECCR1H101J	100 pF	7
R281	ERDS2TJ102	1 KΩ	1	C42	ECCR1H681J	680 pF	1
R282	ERDS2TJ222	2.2 KΩ	1	C43, 44	ECEA1CKA470	47μF, 16V	2
R283, 284	ERDS2TJ103	10 KΩ	2	C45	ECCR1H681J	680 pF	1
R285	ERDS2TJ472	4.7 KΩ	1	C46, 47	ECCR1H101J	100 pF	2
R286	ERDS2TJ471	470Ω	1	C48	ECQG1H222KZ	0.0022μF	1
R287	ERDS2TJ334	330 KΩ	1	C49	ECCR1H681J	680 pF	1
R288	ERDS2TJ473	47 KΩ	1	C50	ECEA1CKA470	47μF, 16V	1
R289, 290	ERDS2TJ224	220 KΩ	2	C51	ECQG1H222KZ	0.0022μF	1
R291	ERDS2TJ473	47 KΩ	1	C52, 53	ECCR1H101J	100 pF	2
R292, 293	ERDS2TJ472	4.7 KΩ	2	C54, 55	ECQG1H222KZ	0.0022μF	2
R294	ERDS2TJ474	470 KΩ	1	C56~58	ECCR1H470J	47 pF	3
R295	ERDS2TJ472	4.7 KΩ	1				
R296, 297	ERDS2TJ104	100 KΩ	2				

Ref. No.	Part No.	Description	Per/Set	Ref. No.	Part No.	Description	Per/Set
C59	ECEA1HKA010	1μF, 50V	1	C148	ECEA1CKA100	10μF, 16V	1
C60	ECEA1CKA470	47μF, 16V	1	C149	ECKR1E473ZV	0.047μF	1
C61	ECQG1H682KZ	0.0068μF	1	C150	ECEA1EKA4R7	4.7μF, 25V	1
C62	ECQV1H104JZ	0.1μF	1	C151	ECEA1HKN010	1μF, 50V	1
C63	ECQG1H102KZ	0.001μF	1	C152, 153	ECCR1H220J	22pF	2
C64	ECQG1H332KZ	0.0033μF	1	C154~156	ECEA1HKN010	1μF, 50V	3
C65	ECEA1CKA100	10μF, 16V	1	C157	ECCR1H101J	100pF	1
C66	ECEA1HKA010	1μF, 50V	1	C158	ECEA1HKN010	1μF, 50V	1
C67	ECEA1CKA470	47μF, 16V	1	C159	ECCR1H331J	330pF	1
C68	ECQG1H472KZ	0.0047μF	1	C160	ECKR1E473ZV	0.047μF	1
C69	ECEA1CKA100	10μF, 16V	1	C161	ECCR1H331J	330pF	1
C70	ECQG1H472KZ	0.0047μF	1	C162	ECKR1E473ZV	0.047μF	1
C71	ECEA1CKA100	10μF, 16V	1	C163, 164	ECCR1H331J	330pF	2
C72	ECQG1H222KZ	0.0022μF	1	C165, 166	ECCR1H220J	22pF	2
C73	ECCR1H151J	150pF	1	C167	ECQG1H222KZ	0.0022μF	1
C74	ECQG1H222KZ	0.0022μF	1	C168	ECCR1H471J	470pF	1
C75	ECCR1H151J	150pF	1	C169	ECCR1H331J	330pF	1
C76, 77	ECEA1HKN010	1μF, 50V	2	C170	ECEA1CKN470	47μF, 16V	1
C80	ECCR1H221J	220pF	1	C171	ECQG1H222KZ	0.0022μF	1
C81	ECCR1H470J	47pF	1	C172, 173	ECCR1H221J	220pF	2
C82, 83	ECEA1HKN010	1μF, 50V	2	C174	ECCR1H470J	47pF	1
C84	ECQV1H104JZ	0.1μF	1	C175	ECEA1HKN010	1μF, 50V	1
C85	ECQV1H154JZ	0.15μF	1	C176	ECQG1H222KZ	0.0022μF	1
C86	ECEA1HKN010	1μF, 50V	1	C177	ECCR1H221J	220pF	1
C87	ECQV1H104JZ	0.1μF	1	C178	ECKR1E473ZV	0.047μF	1
C88	ECQV1H473JZ	0.047μF	1	C179	ECCR1H681J	680pF	1
C89	ECEA1HKA010	1μF, 50V	1	C180, 181	ECEA1HKN010	1μF, 50V	2
C90, 91	ECCR1H101J	100pF	2	C182, 183	ECEA1HKA010	1μF, 50V	2
C92	ECEA1HKA010	1μF, 50V	1	C184	ECCR1H151J	150pF	1
C93	ECQG1H102KZ	0.001μF	1	C185~187	ECKR1E473ZV	0.047μF	3
C94	ECEA1CKA470	47μF, 16V	1	C189~209	ECKR1E473ZV	0.047μF	21
C95	ECQG1H102KZ	0.001μF	1	C211~215	ECKR1E473ZV	0.047μF	5
C96, 97	ECCR1H221J	220pF	2	C218, 219	ECKR1E473ZV	0.047μF	2
C98	ECQG1H102KZ	0.001μF	1	C220	ECCR1H101J	100pF	1
C99	ECEA1CKA470	47μF, 16V	1	C221	ECQV1H104JZ	0.1μF	1
C100	ECQG1H472KZ	0.0047μF	1	C222	ECQV1H473JZ	0.047μF	1
C101, 102	ECCR1H101J	100pF	2	C223	ECQM1H103KV	0.01μF	1
C103	ECEA1CKA100	10μF, 16V	1	C224	ECRR1H104ZF	0.1μF	1
C104	ECEA1HKA010	1μF, 50V	1	C225	ECCR1H101J	100pF	1
C105, 106	ECQG1H472KZ	0.0047μF	2	C226	ECCR1H470J	47pF	1
C107	ECCR1H681J	680pF	1	C227	ECQG1H152KZ	0.0015μF	1
C110	ECCR1H101J	100pF	1	C228	ECCR1H151J	150pF	1
C111	ECQG1H152KZ	0.0015μF	1	C229	ECQV1H473JZ	0.047μF	1
C112	ECCR1H101J	100pF	1	C230	ECQG1H152KZ	0.0015μF	1
C113	ECQG1H152KZ	0.0015μF	1	C231	ECCR1H151J	150pF	1
C114	ECQV1H334JZ	0.33μF	1	C232	ECQV1H473JZ	0.047μF	1
C115	ECQG1H472KZ	0.0047μF	1	C233	ECQG1H152KZ	0.0015μF	1
C116	ECQV1H104JZ	0.1μF	1	C234	ECCR1H151J	150pF	1
C117	ECEA1CKA100	10μF, 16V	1	C235	ECQV1H473JZ	0.047μF	1
C118	ECKR1E473ZV	0.047μF	1	C236	ECQG1H152KZ	0.0015μF	1
C119	ECEA0JKA101	100μF, 6.3V	1	C237	ECCR1H151J	150pF	1
C120, 121	ECEA1CKA100	10μF, 16V	2	C238	ECQV1H473JZ	0.047μF	1
C122	ECQM1H473KV	0.047μF	1	C239	ECQG1H152KZ	0.0015μF	1
C125	ECQM1H473KV	0.047μF	1	C240	ECCR1H151J	150pF	1
C128	ECKR1E473ZV	0.047μF	1	C241	ECQV1H473JZ	0.047μF	1
C129	ECEA0JKA101	100μF, 6.3V	1	C242	ECQG1H152KZ	0.0015μF	1
C130, 131	ECKR1E473ZV	0.047μF	2	C243	ECCR1H151J	150pF	1
C132	ECEA1CKA470	47μF, 16V	1	C244	ECQV1H473JZ	0.047μF	1
C133	ECEA1EKA4R7	4.7μF, 25V	1	C245	ECQG1H152KZ	0.0015μF	1
C134	ECEA1CKA470	47μF, 16V	1	C246	ECCR1H151J	150pF	1
C135	ECEA1EKA4R7	4.7μF, 25V	1	C247	ECQV1H473JZ	0.047μF	1
C136	ECKR1E473ZV	0.047μF	1	C248	ECCR1H221J	220pF	1
C139	ECKR1E473ZV	0.047μF	1	C249	ECQV1H473JZ	0.047μF	1
C142, 143	ECKR1E473ZV	0.047μF	2	C250	ECQV1H334JZ	0.33μF	1
C145	ECEA1HKA010	1μF, 50V	1	C251	ECEA1HKN010	1μF, 50V	1
C146	ECEA1CKA100	10μF, 16V	1	C301	ECEA1HKA2R2	2.2μF, 50V	1
C147	ECEA1HKA010	1μF, 50V	1				

DRV DIGITAL REVERB CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	MN1280R	Reset IC	1
IC2	SVIGHM65256	256K bit Partial S RAM	1
IC3	SVIGMB622416	Gate Array	1
IC4	MN8305S	A-D/D-A Converter	1
IC5	SVIG87064073	Digital Signal Processor	1
IC6	SVIGM5278L05	+5V Voltage Regulator	1
IC7	SVIGM5220L	Operational Amplifier	1
IC8~10	SVIGM5218L	Operational Amplifier	3
IC11	SVIGLM1894N	Dynamic Noise Reduction	1
IC12	MN74HC02S	Quad 2-input NOR Gates	1
TRANSISTORS			
Q1, 2	2SJ105GR	FET	2
DIODES			
D1~5	MA165TA5		5
OSCILLATOR			
X1	SVQGA20MX040	20MHz, Ceramic Oscillator	1
SEMI-FIXED RESISTOR			
VR1	EVND4AA00B24	20KΩ B, DRV Bias	1
RESISTORS			
R1	ERDS2TJ333	33KΩ	1
R2	ERDS2TJ682	6.8KΩ	1
R3, 4	ERDS2TJ473	47KΩ	2
R5	ERDS2TJ393	39KΩ	1
R6, 7	ERDS2TJ103	10KΩ	2
R8	ERDS2TJ473	47KΩ	1
R9	ERDS2TJ152	1.5KΩ	1
R10	ERDS2TJ563	56KΩ	1
R11	ERDS2TJ183	18KΩ	1
R12, 13	ERDS2TJ823	82KΩ	2
R14	ERDS2TJ153	15KΩ	1
R15	ERDS2TJ103	10KΩ	1
R16	ERDS2TJ472	4.7KΩ	1
R17	ERDS2TJ153	15KΩ	1
R18	ERDS2TJ103	10KΩ	1
R19	ERDS2TJ472	4.7KΩ	1
R20	ERDS2TJ682	6.8KΩ	1
R21~23	ERDS2TJ473	47KΩ	3
R24	ERDS2TJ682	6.8KΩ	1
R25~27	ERDS2TJ473	47KΩ	3
R36, 37	ERDS2TJ331	330Ω	2
R38	ERDS2TJ102	1KΩ	1
R39	ERDS2TJ221	220Ω	1
R40, 41	ERDS2TJ473	47KΩ	2
R44, 45	ERDS2TJ472	4.7KΩ	2
R46, 47	ERDS2TJ221	220Ω	2
R50~52	ERD2FCJ4R7	4.7Ω, 1/4W, Fuse Type	3
R53, 54	ERD2FCG100	10Ω, 1/4W, Fuse Type	2
R55	ERDS2TJ105	1MΩ	1
R58, 59	ERDS2TJ101	100Ω	2
R62~66	ERDS2TJ152	1.5KΩ	5
R68~70	ERDS2TJ472	4.7KΩ	3
R71	ERDS2TJ225	2.2MΩ	1
R72	ERDS2TJ332	3.3KΩ	1
R73, 74	ERDS2TJ225	2.2MΩ	2

Ref. No.	Part No.	Description	Per/Set
CAPACITORS			
C1	ECQB1H153JZ	0.015μF	1
C2	ECQG1H682KZ	0.0068μF	1
C3, 4	ECCR1H471J	470pF	2
C5	ECCR1H101J	100pF	1
C6	ECEA1HKA010	1μF, 50V	1
C8	ECEA1HKA010	1μF, 50V	1
C9	ECQG1H152KZ	0.0015μF	1
C10	ECCR1H151J	150pF	1
C11	ECEA1HKA010	1μF, 50V	1
C12	ECQG1H332KZ	0.0033μF	1
C13	ECQG1H472KZ	0.0047μF	1
C14, 15	ECCR1H471J	470pF	2
C16	ECCR1H101J	100pF	1
C17	ECEA1HKA010	1μF, 50V	1
C18	ECQG1H332KZ	0.0033μF	1
C19	ECQG1H472KZ	0.0047μF	1
C20, 21	ECCR1H471J	470pF	2
C22	ECCR1H101J	100pF	1
C31, 32	ECEA1HKA010	1μF, 50V	2
C33	ECEA1HKAR22	0.22μF, 50V	1
C34	ECQB1H103JZ	0.01μF	1
C35	ECEA1HKAR22	0.22μF, 50V	1
C36	ECQB1H103JZ	0.01μF	1
C37	ECQV1H473JZ	0.047μF	1
C38	ECQV1H104JZ	0.1μF	1
C39	ECQB1H103JZ	0.01μF	1
C40	ECQG1H332KZ	0.0033μF	1
C41	ECEA1CKA470	47μF, 16V	1
C42	ECEA1CKA100	10μF, 16V	1
C43	ECEA1CKA470	47μF, 16V	1
C50~52	ECEA0JKA101	100μF, 6.3V	3
C53, 54	ECEA0JKS331	330μF, 6.3V	2
C55, 56	ECEA1CKA101	100μF, 16V	2
C57	ECCR1H101J	100pF	1
C58, 59	ECCR1H100J	10pF	2
C60	ECKR1E473ZV	0.047μF	1
C62, 63	ECKR1E473ZV	0.047μF	2
C66	ECCR1H470J	47pF	1
C67	ECRR1H104ZF	0.1μF	1
C68	ECEA1HKN010	1μF, 50V	1
C69	ECEA1HKA010	1μF, 50V	1
C70	ECRR1H104ZF	0.1μF	1

PKB PEDAL KEYBOARD CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	MN1280R	Reset IC	1
IC2	D78C11AWF03	Microcomputer	1
OSCILLATOR			
X1	SVQGA15MX001	15MHz, Ceramic Oscillator	1
COMPONENT COMBINATIONS			
Z1~3	EXBPI8332JM	3.3KΩ × 8	3
SWITCHES			
S1~14	QSPG1001AA	Rubber Switch (5pcs. on one)	3

PSS SUB POWER SUPPLY CIRCUIT

Ref. No.	Part No.	Description	Per/Set
RESISTORS			
R1	ERDS2TJ102	1KΩ	1
R10	ERDS2TJ103	10KΩ	1
R11, 12	ERDS2TJ472	4.7KΩ	2
R13, 14	ERD2FCG220	22Ω, 1/4W, Fuse Type	2
R15, 16	ERDS2TJ103	10KΩ	2
R17	ERDS2TJ101	100Ω	1
R18	ERDS2TJ472	4.7KΩ	1
R19~21	ERDS2TJ103	10KΩ	3
R22	ERD2FCG101	100Ω, 1/4W, Fuse Type	1
R23	ERDS2TJ184	180KΩ	1
CAPACITORS			
C1	ECQV1H104JZ	0.1μF	1
C2, 3	ECCR1H220J	22pF	2
C4	ECEA0JKA101	100μF, 6.3V	1
C5	ECQV1H104JZ	0.1μF	1
C6	ECEA1CKA470	47μF, 16V	1

EXP EXPRESSION CIRCUIT

Ref. No.	Part No.	Description	Per/Set
CDS			
CS1	SVEG5	Light Sensitive Device	1

ACP AC POWER SUPPLY CIRCUIT

Ref. No.	Part No.	Description	Per/Set
LINE FILTER			
L1	SLTGLF4	Line Filter	1
SWITCH			
S1	ESE37209	Voltage Selector, [EK], [XR], [XL], [XS], [XD], [X] only	1
FUSES			
F1	XBA1C40NS5	4A, 125V, [N] only	1
F1	XBA1C50NU100	5A, 125V, [M], [MC], [XM] only	1
F1	XBA2C31TB0	T3.15A, 250V } [EK], [XR], [XL], [XS], [XD], [X] only	1
F2	XBA2C16TB0	T1.6A, 250V	1
F2	XBA2C16TB0	T1.6A, 250V, Other areas	1
CAPACITORS			
C1	ECKCVA1472MF	4700pF, Line-Capacitor	1
C2	ECQU2A104MN	0.1μF, 250V, Across-the Line Capacitor	1

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUIT			
IC1	SVIGM5F7812	Voltage Regulator	1
TRANSISTORS			
Q1, 2	2SD1266	2SD1266	2
Q3, 5	2SC2320LFG	2SC1310FG (SUB. Part)	2
Q4, 7	2SJ105GR	FET	2
Q6, 8	2SA1015-GR	2SA933STRS (SUB. Part)	2
Q9	2SB941		1
DIODES			
D1, 2	SVDGGP20GL	Rectifier	2
D5, 6, 9, 10	SVDGERA1502Y	Rectifier	4
D7, 8	MA4200	Zener, 20V	2
D11	MA165TA5		1
RELAY			
RL1	QSYGR3211737	Relay	1
FUSES			
F1, 2	XBA1C31NU100	3.15A, 125V, [M], [MC], [XM] only	2
RESISTORS			
R1, 2	ERX2ANJP1R0S	1Ω, 2W, Flame-Proof	2
R3	ERDS2TJ471	470Ω	1
R4	ERDS2TJ822	8.2KΩ	1
R5	ERDS2TJ223	22KΩ	1
R6	ERDS2TJ103	10KΩ	1
R7	ERDS2TJ471	470Ω	1
R8	ERX1ANJP1R0S	1Ω, 1W, Flame-Proof	1
R9	ERDS2TJ223	22KΩ	1
CAPACITORS			
C1	ECEA1VU332	3300μF, 35V	1
C2	ECEA1VU222	2200μF, 35V	1
C3~6	ECEA1HKA010	1μF, 50V	4
C7	ECEA1EU101	100μF, 25V	1
C8	ECEA1HKA010	1μF, 50V	1

PSM MAIN POWER SUPPLY CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGM5291P	Switching Regulator	1
IC2	SVIGM5F7815	Voltage Regulator	1
IC3	SVIGM5F7915	Voltage Regulator	1
TRANSISTORS			
Q1	2SB953AQP		1
S Q2	2SA1015-GR	2SA933STRS (SUB. Part)	1
S Q3	2SC2320LFG	2SC1310FG (SUB. Part)	1
DIODES			
D1, 4	MA165TA5		2
D2	SVDGERC9102		1
D3	MA2062LF	Zener, 6.2V	1
COIL			
L1	SLCG3A121T	Coil	1
RESISTORS			
R1	△ ERX1ANJPR22S	0.22Ω, 1W, Flame-Proof	1
R2	ERDS2TJ471	470Ω	1
R3	ERDS2TJ152	1.5KΩ	1
R4	ERDS2TJ103	10KΩ	1
R5	ER0S2CKF1001	1KΩ, ±1%	1
R6	ER0S2CKF3571	3.57KΩ, ±1%	1
R7	△ ERG1ANJP221S	220Ω, 1W, Flame-Proof	1
R8, 9	ERDS2TJ101	100Ω	2
R10	ERDS2TJ223	22KΩ	1
R11	ERDS2TJ473	47KΩ	1
R12	ERDS2TJ103	10KΩ	1
R14	ERDS2TJ103	10KΩ	1
R15	ERDS2TJ223	22KΩ	1
R16	ERDS2TJ103	10KΩ	1
R17	ERDS2TJ102	1KΩ	1
CAPACITORS			
C1	ECEA1EU471	470μF, 25V	1
C2	ECCR1H471J	470pF	1
C3	ECEA1HKA2R2	2.2μF, 50V	1
C4, 5	ECEA0JU222	2200μF, 6.3V	2
C6	ECKR1E473ZV	0.047μF	1
C7~10	ECEA1EKA470	47μF, 25V	4
C11	ECEA1CKA100	10μF, 16V	1

PA POWER AMPLIFIER CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGS4221M2M	Power Amplifier	1
DIODES			
D1, 2, 4, 5, 8, 9, 11, 12	SVDGS3V20-15	Rectifier	8
RESISTORS			
R1	ERDS2TJ273	27KΩ	1
R2	ERDS2TJ153	15KΩ	1
R3	ERDS2TJ222	2.2KΩ	1
R4	ERDS2TJ393	39KΩ	1
R5	ERDS2TJ472	4.7KΩ	1
R6, 7	ERDS2TJ222	2.2KΩ	2
R8	ERDS2TJ224	220KΩ	1
R9	ERDS2TJ103	10KΩ	1
R11	ERDS2TJ681	680Ω	1
R12, 13	ERDS2TJ102	1KΩ	2
R14	△ ERD50FJ4R7	4.7Ω, 1/2W, Flame-Proof	1
R15	△ ERD2FCG101	100Ω, 1/4W, Fuse Type	1
R16	△ ERD50FJ4R7	4.7Ω, 1/2W, Flame-Proof	1
R17, 18	ERDS2TJ222	2.2KΩ	2
R19	ERDS2TJ472	4.7KΩ	1
R20	ERDS2TJ393	39KΩ	1
R21	ERDS2TJ222	2.2KΩ	1
R23	ERDS2TJ153	15KΩ	1
R24	ERDS2TJ273	27KΩ	1
R40	△ ERD2FCG101	100Ω, 1/4W, Fuse Type	1
R41	△ ERD50FJ4R7	4.7Ω, 1/2W, Flame-Proof	1
CAPACITORS			
C1	ECEA1HKN010	1μF, 50V	1
C2	ECCR1H221J	220pF	1
C3	ECEA1EKA100	10μF, 25V	1
C4	ECEA1HU470	47μF, 50V	1
C5	ECEA1HKA4R7	4.7μF, 50V	1
C6	ECQV1H104JZ	0.1μF	1
C7	ECEA1HU470	47μF, 50V	1
C9	ECEA1HU470	47μF, 50V	1
C10	ECEA1EKA100	10μF, 25V	1
C11	ECCR1H221J	220pF	1
C12	ECEA1HKN010	1μF, 50V	1
C13	ECES1HU472H	4700μF, 50V	1
C14, 15	ECEA50Y3R3	3.3μF, 50V	2
C22	ECEA1HU470	47μF, 50V	1
C23	ECQV1H104JZ	0.1μF	1
C29	ECES1HU472H	4700μF, 50V	1
C30	△ ECQE2A104MW	0.1μF, 250V	1
○ C31, 32	ECEA50Y8R2	8.2μF, 50V	2

FDC FD CONTROL CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGD72067C	Floppy Disk Controller	1
IC2	SVIGM74H02	Quad 2-input NOR Gates	1
IC3	SVIGM74H00	Quad 2-input NAND Gates	1
IC4	SVIGM74H14	Hex Schmitt-Trigger Inverter	1
IC5	SVIGM74H04	Hex Inverters	1
OSCILLATOR			
X2	SVQG49S3200T	32MHz, Quartz Oscillator	1
COMPONENT COMBINATIONS			
Z1, 2	EXBPI8103JM	10K Ω $\times$ 8	2
Z3	EXBPI8102JM	1K Ω $\times$ 8	1
RESISTORS			
R1~4	ERDS2TJ472	4.7K Ω	4
R5, 6	ERDS2TJ153	15K Ω	2
CAPACITORS			
C1, 2	ECBA1H100J	10pF	2
C6	ECEA0JKA331	330 μ F, 6.3V	1
C7~11	ECRR1H104ZF	0.1 μ F	5

Ref. No.	Part No.	Description	Per/Set
RESISTORS			
R10~13	ERDS2TJ103	10K Ω	4
R14	ERDS2TJ184	180K Ω	1
R15	ERDS2TJ221	220 Ω	1
R16	ERDS2TJ103	10K Ω	1
R17~21	ERDS2TJ152	1.5K Ω	5
R22~38	ERDS2TJ470	47 Ω	17
CAPACITORS			
C2	ECRR1H104ZF	0.1 μ F	1
C3	ECEA0JKA101	100 μ F, 6.3V	1
C4	ECCR1H101J	100pF	1
C5	ECEA1HKA010	1 μ F, 50V	1
C6~8	ECRR1H104ZF	0.1 μ F	3
C9	ECCR1H331J	330pF	1

ESW ENCODER SWITCH

Ref. No.	Part No.	Description	Per/Set
SWITCH			
S1	SSRG110A	Encoder Switch	1

CPL UPPER CONTROL PANEL LEFT CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGM603A121	Gate Array	1
IC2~4	SVIGM74LS07	Hex Buffers (O.C.)	3
TRANSISTORS			
Q1~4	2SA830SB		4
DIODES			
D1~16, 19~64	MA165TA5		61
D66~78, 80, 83~91, 93, 103, 104, 119~123	LN282R	LED (Red)	31
D79, 92, 94~102, 106~118	LN382G	LED (Green)	24
COMPONENT COMBINATION			
Z1	EXBPI8103JM	10K Ω $\times$ 8	1
SWITCHES			
S2~16, 19~64	SSHG1045A	Push Switch	60

CPSL LOWER CONTROL PANEL LEFT CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGM603A121	Gate Array	1
IC2~4	SVIGM74LS07	Hex Buffers (O.C.)	3
TRANSISTORS			
Q1~5	2SA830SB		5
DIODES			
D1~76, 79~82, 151	MA165TA5		60
D83~90, 114~145	SEL2210SM	LED (Red)	40
D99~102, 104, 105	LN282R	LED (Red)	5
D103, 147, 149, 150	LN382G	LED (Green)	4
COMPONENT COMBINATION			
Z1	EXBPI8103JM	10K Ω $\times$ 8	1
SWITCHES			
S2~76, 79~82, 151	SSHG1045A	Push Switch	59

Ref. No.	Part No.	Description	Per/Set
RESISTORS			
R10~13	ERDS2TJ103	10K Ω	4
R14	ERDS2TJ184	180K Ω	1
R15	ERDS2TJ221	220 Ω	1
R16	ERDS2TJ103	10K Ω	1
R17~21	ERDS2TJ152	1.5K Ω	5
R22, 23, 26~29, 32~40	ERDS2TJ470	47 Ω	15
CAPACITORS			
C3	ECEA0JKA101	100 μ F, 6.3V	1
C4	ECCR1H101J	100pF	1
C5	ECEA1HKA010	1 μ F, 50V	1
C6~8	ECRR1H104ZF	0.1 μ F	3
C9	ECCR1H331J	330pF	1

Ref. No.	Part No.	Description	Per/Set
RESISTORS			
R10~13	ERDS2TJ103	10K Ω	4
R14	ERDS2TJ184	180K Ω	1
R15	ERDS2TJ221	220 Ω	1
R16	ERDS2TJ103	10K Ω	1
R17~21	ERDS2TJ152	1.5K Ω	5
R26~29	ERDS2TJ470	47 Ω	4
R32~35	ERDS2TJ470	47 Ω	4
R37	ERDS2TJ225	2.2M Ω	1
R38	ERDS2TJ222	2.2K Ω	1
R42	ERDS2TJ105	1M Ω	1
R43	ERDS2TJ474	470K Ω	1
R44	ERDS2TJ155	1.5M Ω	1
CAPACITORS			
C2	ECRR1H104ZF	0.1 μ F	1
C3	ECEA0JKA101	100 μ F, 6.3V	1
C4	ECCR1H101J	100pF	1
C5	ECEA1HKA010	1 μ F, 50V	1
C6	ECRR1H104ZF	0.1 μ F	1
C7	ECEA1HKA2R2	2.2 μ F, 50V	1

CPC UPPER CONTROL PANEL CENTER CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1 IC2	SVIGM603A121 SVIGM74LS07	Gate Array Hex Buffers (O.C.)	1 1
TRANSISTORS			
Q1~6 Q7	2SA830SB 2SC2320LFG	2SC1310FG (SUB. Part)	6 1
DIODES			
D1~62, 87 D63~73, 76~79, 85, 86 D74, 80~84	MA165TA5 LN282R LN382G	LED (Red) LED (Green)	57 16 6
COMPONENT COMBINATION			
Z1	EXBPI8103JM	10K Ω $\times$ 8	1
SWITCHES			
S2~62	SSHG1045A	Push Switch	59
VARIABLE RESISTOR			
○ VR1	QRVG20N01B14	10K Ω B, LCD Contrast	1

CPR UPPER CONTROL PANEL RIGHT CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGM603A121	Gate Array	1
IC2~5	SVIGM74LS07	Hex Buffers (O.C.)	4
TRANSISTORS			
Q1~4	2SA830SB		4
DIODES			
D1~81	MA165TA5	LED (Red)	56
D86~107, 141~162	SEL2210SM		36
D109~126, 136	LN282R	LED (Red)	15
D128~131	LN382G	LED (Green)	4
SWITCHES			
S3~83	SSHG1045A	Push Switch	55
RESISTORS			
R2~13	ERDS2TJ103	10K Ω	12
R14	ERDS2TJ184	180K Ω	1
R15	ERDS2TJ221	220 Ω	1
R16	ERDS2TJ103	10K Ω	1
R17~21	ERDS2TJ152	1.5K Ω	5
R22~33, 36~43	ERDS2TJ470	47 Ω	20

Ref. No.	Part No.	Description	Per/Set
CAPACITORS			
C2	ECRR1H104ZF	0.1μF	1
C3	ECEA0JKA101	100μF, 6.3V	1
C4	ECCR1H101J	100pF	1
C5	ECEA1HKA010	1μF, 50V	1
C6~8	ECRR1H104ZF	0.1μF	3
C9	ECCR1H681J	680pF	1

■ WIRING PARTS

Ref. No.	Part No.	Description	Per/Set
○ W2, 8, 18, 25	QEXG14003SSA	Connector with Wire	4
○ W3	QEXG04012SSA	Connector with Wire	1
○ W4	QEXG16003SSA	Connector with Wire	1
○ W6	QEXG14002SSA	Connector with Wire	1
○ W7	SWKG168SSA	Connector with Wire	1
○ W9	QEXG11001STA	Connector with Wire	1
○ W10	QEXG04003STA	Connector with Wire	1
○ W11	QEXG12002SSA	Connector with Wire	1
○ W12	QEXG03001STA	Connector with Wire	1
○ W13	QEXG09001ZA	Connector with Wire	1
○ W14	QEXG14001SSA	Connector with Wire	1
○ W15	QEXG04006LTA	Connector with Wire	1
○ W16	QEXG04007ZB	Connector with Wire	1
○ W17	SWKG08115SSA	Connector with Wire	1
○ W19	QEXG13001SSA	Connector with Wire	1
○ W20	QEXG16001STA	Connector with Wire	1
○ W22	QEXG08001SSA	Connector with Wire	1
○ W23	SWKG08132SSA	Connector with Wire	1
○ W24	SWKG06117SSA	Connector with Wire	1
○ W26	QEXG13004ZA	Connector with Wire	1
○ W29	SWKG0712SSA	Connector with Wire	1
○ W30	QEXG13002SSA	Connector with Wire	1
○ W31	QEXG04010LSA	Connector with Wire	1
○ W32	QEXG12001SSA	Connector with Wire	1
○ W33	QEXG13003ZA	Connector with Wire	1
○ W34	QEXG03003ZA	Connector with Wire	1
○ W35	QEXG05003ZA	Connector with Wire	1
○ W36	QEXG10002ZA	Connector with Wire	1
○ W37	QEXG04005LSA	Connector with Wire	1
○ W38	QEXG03002SSA	Connector with Wire	1
○ W39	QEXG04009ZA	Connector with Wire	1
○ W40	QEXG05002SSA	Connector with Wire	1
○ W41	SWKG04115LTA	Connector with Wire	1
○ W42	QEXG04004STA	Connector with Wire	1
○ W43	SWKG0675SSA	Connector with Wire	1

REPLACEMENT PARTS LIST Cabinet and Chassis Parts

Notes:

- Important safety notice
Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- $\bigcirc$ mark are new parts.
- For part No. with area mark, check the area when placing an order.

- There are two identical models are available as SX-GN5K and SX-GN5 and all specifications are the same in both models except cabinet parts and panel parts. Identify an unit with model number which available on the name plate on the rear board and order correct parts.

SX-GN5K CABINET & CHASSIS PARTS

(SX-GN5K)

Ref. No.	Part No.	Description	Per/Set
POWER SWITCH			
$\bigcirc$ S1 Δ	QSPG1003AA	Power Switch	1
SPEAKERS			
SP1	EAS30PL142B	30cm, 8 Ω	1
SP2	EAS20PL255C	20cm, 8 Ω	1
$\bigcirc$ SP3, 4	SASG25KH01-F	2.5cm, 4 Ω	2
SP5, 6	EAS15S06A	6 $\times$ 13cm, 16 Ω	2
TRANSFORMERS			
$\bigcirc$ T1 Δ	QTPG1S004A	Power Transformer, [N] only	1
$\bigcirc$ T1 Δ	QTPG1S006A	Power Transformer, [M] [XM] [MC] only	1
$\bigcirc$ T1 Δ	QTPG1S005A	Power Transformer, Others	1
$\bigcirc$ T2 Δ	QTPG1J001A	Power Transformer	1
POWER CORD, PLUGS			
PC1 Δ	SJAG11	AC Power Cord, [N] only	1
PC1 Δ	SJAG22	AC Power Cord, [M] [XM] [MC] only	1
PC1 Δ	SJAG23	AC Power Cord, [XL] [XR] only	1
PC1 Δ	SJAG25	AC Power Cord, [EK] [XS] [XD] only	1
PC1 Δ	SJAG24	AC Power Cord, Others	1
PC2 Δ	SJPG213-1	Attachment Plug, [X] only	1
PC3 Δ	SJPG1350A	Power Plug, [XD] only	1
POWER INDICATOR			
D1	LN29RP	LED, Power Indicator	1
CABINET AND OTHERS			
$\bigcirc$ 1	QGAG2002AA	Clear Panel, Music Rack	1
$\bigcirc$ 4	QKQGA001DA	Top Cover Ass'y	1
$\bigcirc$ 4-1	QKKG0005BA	Ornament (Left)	1
$\bigcirc$ 4-2	QKKG0006BA	Ornament (Right)	1
$\bigcirc$ 4-3	QKKG0001BA	Ornament (Front)	1
$\bigcirc$ 4-4	LSGBG150A	Technics Badge	1
$\bigcirc$ 5	QKQGF001AA	Sliding Cover Ass'y	1
$\bigcirc$ 5-1	QKKG0010AA	Ornament	1
$\bigcirc$ 5-2	SBEG30A	Lock	1
$\bigcirc$ 5-3	SBEG40C	Staple	1
$\bigcirc$ 5-4	SBHG6007-1	Hinge	3
$\bigcirc$ 5-5	SHRG9930A	Catch, Guide Rail	10
$\bigcirc$ 5-6	QMFG1001AA	Felt	2
$\bigcirc$ 5-7	LSHSG119	Felt	6
$\bigcirc$ 6	SBEG60A	Key	1
$\bigcirc$ 7	QKKG0002AA	Ornament	1
$\bigcirc$ 8	SHSG1830A	Felt	2
$\bigcirc$ 9	QYPG1001AA	Cover	1
$\bigcirc$ 10	QMAG0008AA	Bracket	1

Ref. No.	Part No.	Description	Per/Set
$\bigcirc$ 11	QPGG0001CA	Upper Control Panel	1
$\bigcirc$ 12	QKKG001AB	Display Cover Panel	1
$\bigcirc$ 13	QPGG0002CA	Lower Control Panel, Left	1
$\bigcirc$ 14	QPGG0003AA	Lower Control Panel, Right	1
$\bigcirc$ 14	QPGG0003AD	Lower Control Panel, Right	1
$\bigcirc$ 15	QMFG4006BB	Felt	4
$\bigcirc$ 16	QMFG4004BB	Felt	1
$\bigcirc$ 17	QMFG4005BB	Felt	2
$\bigcirc$ 18	QMFG4011AA	Felt	1
$\bigcirc$ 19	SHSG5810A	Felt	1
$\bigcirc$ 20	QMFG4007BB	Felt	1
$\bigcirc$ 21	QMFG4001AA	Felt	1
$\bigcirc$ 22	QMFG4002AA	Felt	1
$\bigcirc$ 23	SBNG4060B	Knob, Tempo/Program	1
$\bigcirc$ 24	SBNG7031A	Knob, Main Volume	1
$\bigcirc$ 25	SBCG110B	Button, Power Switch	1
$\bigcirc$ 26	SHRG9920A	Spacer	1
$\bigcirc$ 27	QKKG0007AA	Ornament, Keyboard	1
$\bigcirc$ 28	QKKG0008BA	Jack Panel	1
$\bigcirc$ 29	SUWG3000A	Bracket	2
$\bigcirc$ 30	SUWG3010A	Bracket	2
$\bigcirc$ 31	SUWG3020A	Bracket	2
$\bigcirc$ 32	SUWG3031A	Bracket	2
$\bigcirc$ 33	QEXG13004ZA	Cable with Bracket	1
$\bigcirc$ 34	QEXG13003ZA	Cable with Bracket	1
$\bigcirc$ 34-1	SHRG1160A	Bushing	2
$\bigcirc$ 35	QKSGE002AA	Front Panel	1
$\bigcirc$ 36	SHSG3050A	Felt	1
$\bigcirc$ 37	SMKG1583A	Jack Panel	1
$\bigcirc$ 38	SBNG4010A	Knob, Mic Volume	1
$\bigcirc$ 39	SHR401-1	Latch	2
$\bigcirc$ 40	SXVG3031B	Knee Lever Ass'y	1
$\bigcirc$ 40-1	SSLG1005A	Leaf Switch	1
$\bigcirc$ 40-2	SSHG1020A	Push Switch	1
$\bigcirc$ 41	SGXG1100K	Ornament, Expression	1
$\bigcirc$ 42	SHRG2120C	Foot	4
$\bigcirc$ 43	SKEG7640A	Guide Rail	1
$\bigcirc$ 44	SKEG7650A	Guide Rail	1
$\bigcirc$ 45	SKEG7660A	Guide Rail	1
$\bigcirc$ 46	SKEG7670A	Guide Rail	1
$\bigcirc$ 47	SHSG3571A	Felt	2
$\bigcirc$ 50	SHRG1110A	Cord Clamper	1
$\bigcirc$ 51	SHRG1120A	Cord Clamper	1
$\bigcirc$ 52	SXVG6030A	Exprsion Pedal Ass'y	1
$\bigcirc$ 52-1	XAMR55P	Lamp	1
$\bigcirc$ 52-2	RJS205ZA	Lamp Socket	1
$\bigcirc$ 52-3	SHGG908	Lamp Holding Rubber	1
$\bigcirc$ 52-4	SSHG14	Foot Switch	2
$\bigcirc$ 53	QKQGD001AA	Rear Board (Upper)	1
$\bigcirc$ 54	QKUG1001BA	Rear Board (Lower), [EK], [X], [XL], [XR], [XS], [XD] only	1
$\bigcirc$ 54	QKUG1001AA	Rear Board (Lower), Others	1
$\bigcirc$ 55	QQLG005AA	Label (VOLT ADJ.)	1
$\bigcirc$ 56	SHGG8510A	Spacer	1
$\bigcirc$ 57	SHRG1030A	Cord Band	1
$\bigcirc$ 58	SHRGA9060A	Cord Clamper	2
$\bigcirc$ 69	SUWG219	Binder	7

(SX-GN5K)

Ref. No.	Part No.	Description	Per/Set
60	SHRG9620A	Cord Clamper	1
PEDAL KEYBOARD			
61	STBG1164C	Long Key (Gray)	8
62	STBG2052A	Short Key (Black)	5
63	STBG2310A	Full-Bass Pedal	1
64	SGXG1390A	Ornament	1
65	SHSG4770A	Felt	1
66	QMRG2005AA	Insulator	1
67	SHSG1600B	Felt	1
68	SHSG1460A	Felt	14
69	SUSG180A	Spring	14
70	SHGG8130A	Rubber	14
71	SHRG9240A	Spacer	14
MANUAL KEYBOARD			
72	STBGA1160A	White Key (C & F Keys)	8
73	STBGA1170A	White Key (D Key)	4
74	STBGA1180A	White Key (E & B Keys)	8
75	STBGA1190A	White Key (G Key)	4
76	STBGA1200A	White Key (A Key)	4
77	STBGA1210A	White Key (Top Octave C Key)	1
78	STBG2930A	Black Key	20
79	STBG9420A	Key Support	3
80	STBG9440A	Key Support	1
81	QMBG001BA	Spring	49
82	SHGG9050A	Key Guide Rubber	49
83	QMFG1005AA	Felt	1
84	STBG9410A	P.C.B. Holder	3
85	STBG9430A	P.C.B. Holder	1
86	SSPG1A	Actuator	3
87	SSPG2A	Actuator	1
88	QMFG1006AB	Felt	1
89	SHRGA5810A	Membrane Sheet	3
90	SHRGA5820A	Membrane Sheet	1
DIGITAL DISK RECORDER (Option)			
91	SUVG1291A	Top Cover	1
92	SFDG30A	DDR Drive Unit	1
93	SUVG1281A	Bottom Cover	1
94	SHRG9850A	P.C.B. Holder	3
BENCH			
95	SKZGC560A	Top Cover Ass'y	1
96	SKZGC471B	Leg	4
97	SBEG190A	Spanner	1
SCREW & WASHERS			
N1	SNEG1890A	Screw with Washer	4
N2	XTS4+12A	Screw	26
N3	XTB35+12A	Screw	28
N4	XTWSG2	Screw with Washer	12
N5	SNEG2400A	Screw with Washer	2
N6	XTB4+12A	Screw	24
N7	XTW3+10Q	Screw	63
N8	XNS9	Nut	1
N9	XYN5+C10	Screw with Washer	6
N10	SNEG740A	Screw	2
N11	XTS3+6B	Screw	2
N12	XYN4+F40	Screw with Washer	1
N13	XTT4+16AFZ	Screw	2
N14	XTB4+14A	Screw	2
N15	XTW3+20Q	Screw	4

(SX-GN5K)

Ref. No.	Part No.	Description	Per/Set
N16	XTB3+5C	Screw	15
N17	XTW3+8JFZ	Screw	1
N18	XTT4+10AFZ	Screw	3
N19	XTS35+12A	Screw	19
N20	XTS3+12A	Screw	3
N21	XTS3+10AFVC	Screw	6
N22	XTW3+10JFZ	Screw	5
N23	XTT35+10AFVC	Screw	12
N24	XTT4+16AFZ	Screw	6
N25	XTT4+30A	Screw	2
N26	XTB35+12A	Screw	4
N27	SNEG2270A	Screw with Washer	4
N28	SNEG770A	Washer	2
N29	SNE4021-1	Nut	1
N30	XNS12FZ	Nut	2
N31	XTN2+10FFX	Screw	1
N32	XYN3+C12	Screw with Washer	3
N33	XYN3+F16FZ	Screw with Washer	2
N34	XTB3+8BFVC	Screw	2
N35	XTB35+20A	Screw	14
N36	XYN4+F20FZ	Screw with Washer	10
N38	XYN3+F20FZ	Screw with Washer	2
N39	XYN5+C25FZ	Screw with Washer	9
N40	SNEG150B	Washer	9
N41	XTB35+25A	Screw	8
N42	XTB3+14AFZ	Screw	4
N43	XTB3+6B	Screw	11
N44	XTT4+14A	Screw	21
N45	XNG5BS	Nut	14
N46	SNEG360A	Bolt	14
N47	XTV3+10G	Screw	1
N48	SNE499-1	Nut	8
N49	XTN26+6B	Screw	2
N50	XTV3+10C	Screw	2
N51	XYN4+F30	Screw with Washer	4
N52	XTT4+30AFZ	Screw	18
N53	XYN4+F10FZ	Screw with Washer	4
N54	XYN5+F30	Screw with Washer	3
N55	XSS3+6FZ	Screw	4
N57	XNH10G	Nut	4
N58	XWB10B	Washer	4
N59	XTW3+6J	Screw	12
N60	XTW3+10JFVC	Screw	28
N61	XTB35+14AFZ	Screw	2

SX-GN5 CABINET & CHASSIS PARTS
(SX-GN5)

Ref. No.	Part No.	Description	Per/Set
POWER SWITCH			
○ S1	△ QSPG1003AA	Power Switch	1
SPEAKERS			
SP1	EAS30PL142B	30cm, 8Ω	1
SP2	EAS20PL255C	20cm, 8Ω	1
○ SP3, 4	SASG25KH01-F	2.5cm, 4Ω	2
SP5, 6	EAS15S06A	6×13cm, 16Ω	2
TRANSFORMERS			
○ T1	△ QTPG1S006A	Power Transformer, [M], [XM], [MC] only	1
○ T1	△ QTPG1S005A	Power Transformer	1
○ T2	△ QTPG1J001A	Power Transformer	1
POWER CORD, PLUGS			
PC1	△ SJAG22	AC Power Cord, [M], [XM], [MC] only	1
PC1	△ SJAG23	AC Power Cord, [XL], [XR] only	1
PC1	△ SJAG25	AC Power Cord, [EK], [XS], [XD] only	1
PC1	△ SJAG24	AC Power Cord, Others	1
PC2	△ SJP5213-1	Attachment Plug, [X] only	1
PC3	△ SJPG1350A	Power Plug, [XD] only	1
POWER INDICATOR			
D1	LN29RP	LED, Power Indicator	1
CABINET AND OTHERS			
○ 1	QGAG2004AA	Clear Panel, Music Rack	1
○ 2	QGAG1002AA	Ornament	1
3	SBLG230B	Stay	2
○ 4	QKQGA004AA	Top Cover Ass'y	1
4-1	[SHRG9301A	Sleeve	2
○ 5	QKQGF001AB	Sliding Cover Ass'y	1
○ 5-1	QKKG0010AB	Ornament	1
5-2	SBEG30A	Lock	1
5-3	SBEG40A	Staple	1
5-4	SBHG6007-1	Hinge	3
5-5	SHRG9930A	Catch, Guide Rail	10
○ 5-6	QMFG1001AA	Felt	2
5-7	SHSG119	Felt	6
5-8	LSGBG150A	Badge	1
6	SBEG60A	Key	1
○ 7	QKKG0002AA	Ornament	1
○ 7	QKKG0002AB	Ornament	1
8	SHSG1830A	Felt	2
9	SGBG140A	Badge	1
○ 10	QKQGG019AA	Bracket	1
○ 11	QPGG0001CA	Upper Control Panel	1
○ 11	QPGG0001CC	Upper Control Panel	1
○ 12	QKKG001AB	Display Cover Panel	1
○ 13	QPGG0002CA	Lower Control Panel, Left	1
○ 13	QPGG0002CC	Lower Control Panel, Left	1
○ 14	QPGG0003AD	Lower Control Panel, Right	1
○ 14	QPGG0003AC	Lower Control Panel, Right	1
○ 15	QMFG4006BB	Felt	4
○ 16	QMFG4004BB	Felt	1
○ 17	QMFG4005BB	Felt	2
○ 18	QMFG4011AA	Felt	1
19	SHSG5810A	Felt	1
○ 20	QMFG4007BB	Felt	1
○ 21	QMFG4001AA	Felt	1

Ref. No.	Part No.	Description	Per/Set
○ 22	QMFG4002AA	Felt	1
○ 23	SBNG4060B	Knob, Tempo/Program	1
24	SBNG7031A	Knob, Main Volume	1
25	SBCG110B	Button, Power Switch	1
26	SHRG9920A	Spacer	1
○ 27	QKKG0007AA	Ornament, Keyboard	1
○ 28	QKKG0008BB	Jack Panel	1
29	SUWG3000A	Bracket	2
30	SUWG3010A	Bracket	2
31	SUWG3020A	Bracket	2
32	SUWG3031A	Bracket	2
○ 33	QEXG13004ZA	Cable with Bracket	1
○ 34	QEXG13003ZA	Cable with Bracket	1
34-1	[SHRG1160A	Bushing	2
○ 35	QKSGE003AB	Front Panel	1
36	SHSG3050A	Felt	1
37	SMKG1583A	Jack Panel	1
38	SBNG4010A	Knob, Mic Volume	1
39	SHR401-1	Latch	2
40	SXVG3031B	Knee Lever Ass'y	1
40-1	[SSLG1005A	Leaf Switch	1
40-2	[SSHG1020A	Push Switch	1
41	SGXG1100A	Ornament, Expression	1
42	SHRG2120A	Foot	4
43	SKEG7640A	Guide Rail	1
44	SKEG7650A	Guide Rail	1
45	SKEG7660A	Guide Rail	1
46	SKEG7670A	Guide Rail	1
47	SHSG3571A	Felt	2
50	SHRG1110A	Cord Clamper	1
51	SHRG1120A	Cord Clamper	1
52	SXVG6030A	Exprssion Pedal Ass'y	1
52-1	XAMR55P	Lamp	1
52-2	RJS205ZA	Lamp Socket	1
52-3	SHGG908	Lamp Holding Rubber	1
52-4	[SSHG14	Foot Switch	2
○ 53	QKQGD001AB	Rear Board (Upper)	1
○ 54	QKUG1001BB	Rear Board (Lower), [EK], [X], [XL], [XR], [XS], [XD] only	1
○ 54	QKUG1001AB	Rear Board (Lower), Others	1
○ 55	SGKG3190A	Label (VOLT ADJ.)	1
56	SHGG8510A	Spacer	1
57	SHRG1030A	Cord Band	1
58	SHRGA9060A	Cord Clamper	2
59	SUWG219	Binder	7
60	SHRG9620A	Cord Clamper	1
PEDAL KEYBOARD			
○ 61	STBG1164A	Long Key (Brown)	8
62	STBG2052A	Short Key (Black)	5
63	STBG2310A	Full-Bass Pedal	1
64	SGXG1390A	Ornament	1
65	SHSG4770A	Felt	1
○ 66	QMRG2005AA	Insulator	1
67	SHSG1600B	Felt	1
68	SHSG1460A	Felt	14
69	SUSG180A	Spring	14
70	SHGG8130A	Rubber	14
71	SHRG9240A	Spacer	14
MANUAL KEYBOARD			
○ 72	STBGA1160A	White Key (C & F Keys)	8
○ 73	STBGA1170A	White Key (D Key)	4
○ 74	STBGA1180A	White Key (E & B Keys)	8
○ 75	STBGA1190A	White Key (G Key)	4
○ 76	STBGA1200A	White Key (A Key)	4

(SX-GN5)

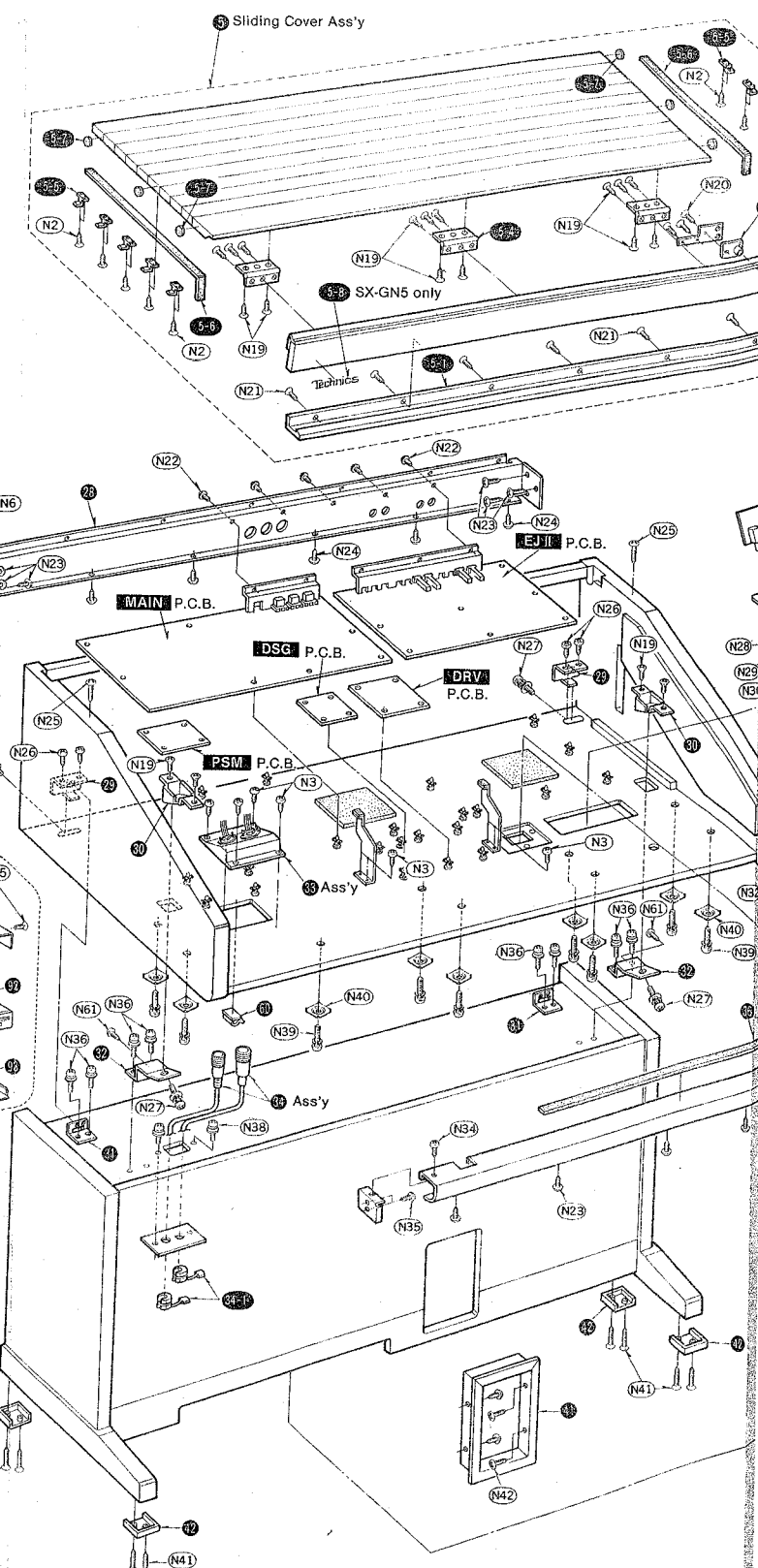
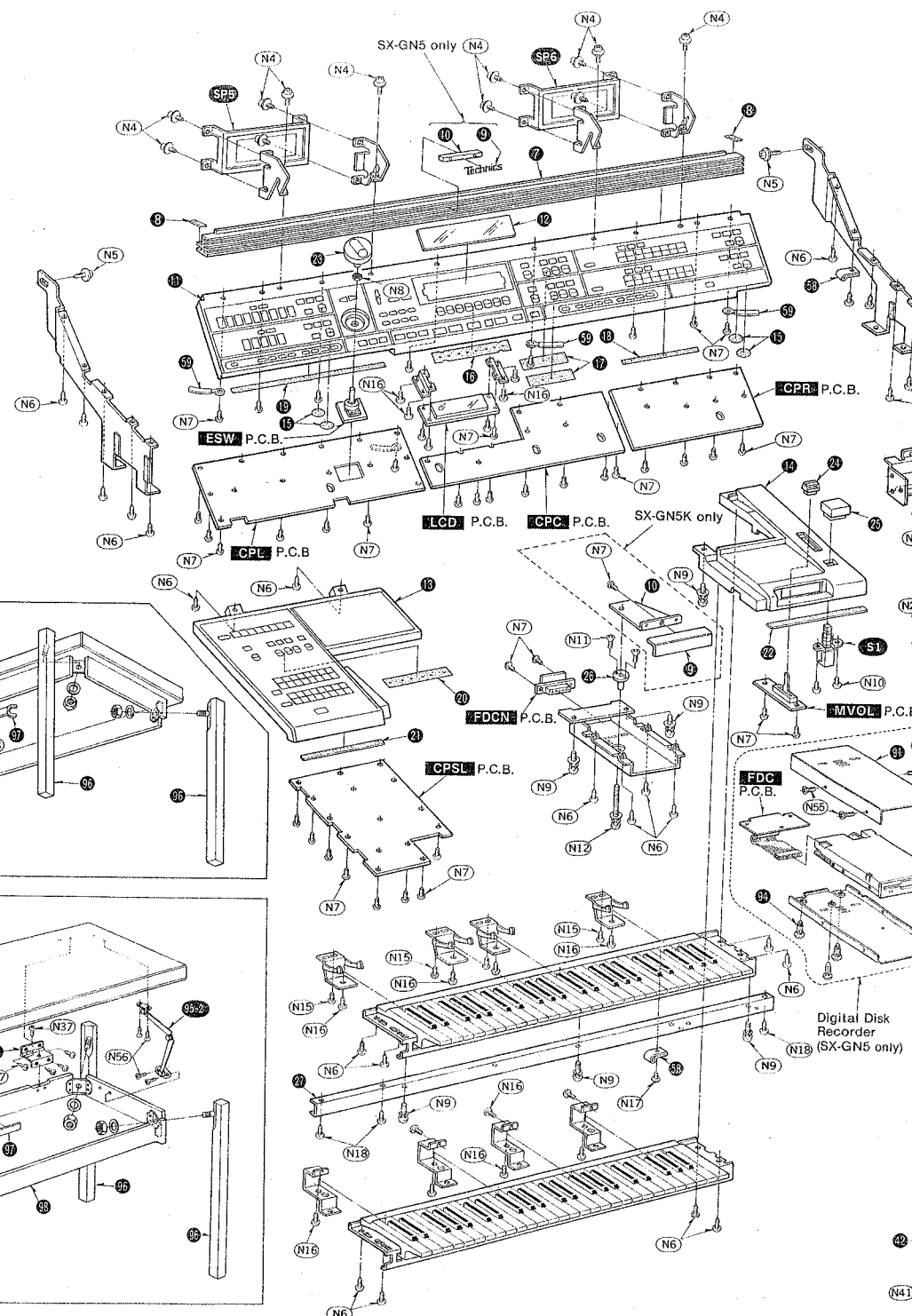
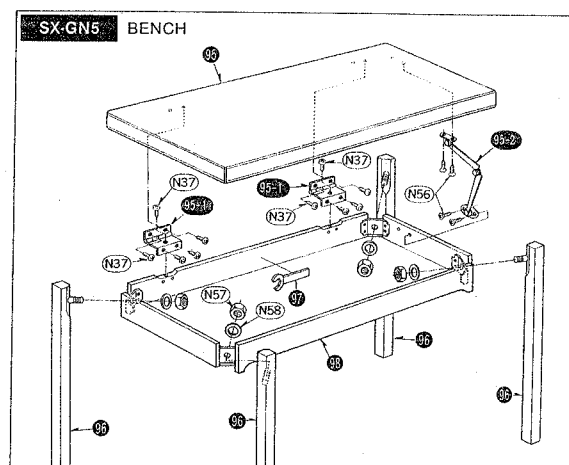
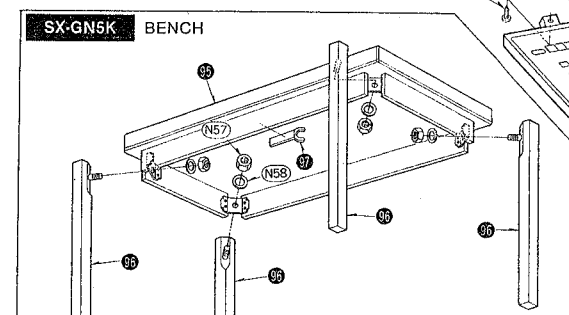
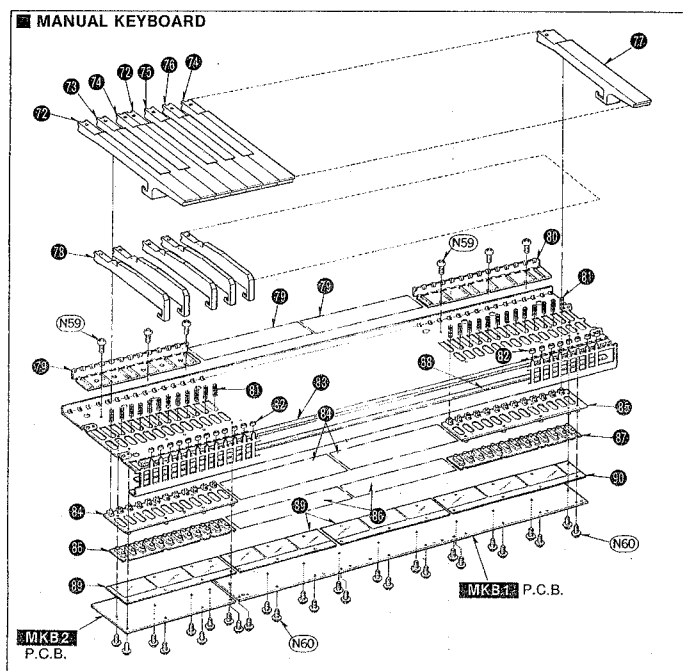
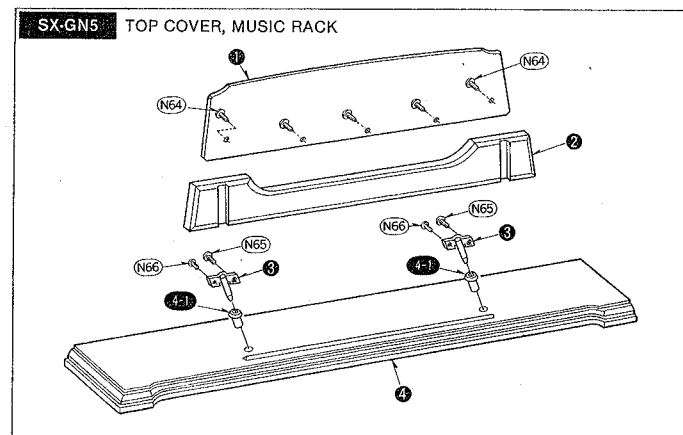
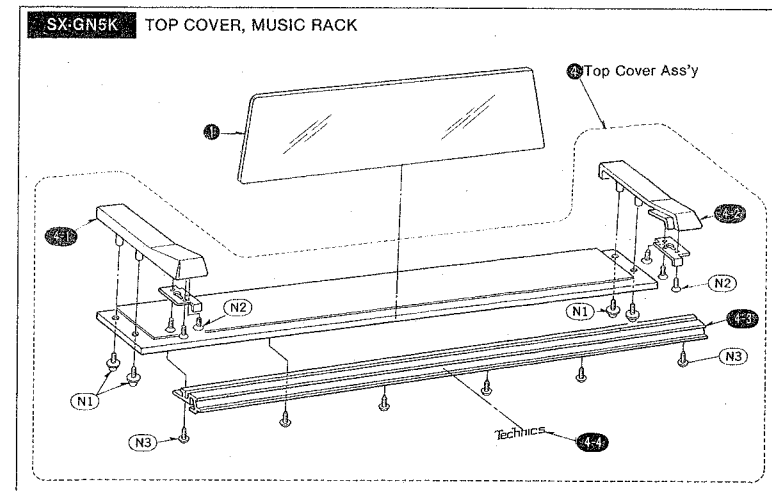
Ref. No.	Part No.	Description	Per/Set
77	STBGA1210A	White Key (Top Octave C Key)	1
78	STBG2930A	Black Key	20
79	STBG9420A	Key Support	3
80	STBG9440A	Key Support	1
81	QMBG001BA	Spring	49
82	SHGG9050A	Key Guide Rubber	49
83	QMFG1005AA	Felt	1
84	STBG9410A	P.C.B. Holder	3
85	STBG9430A	P.C.B. Holder	1
86	SSPG1A	Actuator	3
87	SSPG2A	Actuator	1
88	QMFG1006AB	Felt	1
89	SHRGA5810A	Membrane Sheet	3
90	SHRGA5820A	Membrane Sheet	1
DIGITAL DISK RECORDER			
91	SUVG1291A	Top Cover	1
92	SFDG30A	DDR Drive Unit	1
93	SUVG1281A	Bottom Cover	1
94	SHRG9850A	P.C.B. Holder	3
BENCH			
95	SKZGC850A	Top Cover Ass'y	1
95-1	SBHG50B	Hinge	2
95-2	SBLG70A	Stay	1
96	SKZGC471D	Leg	4
97	SBEG190A	Spanner	1
98	SKZGC860C	Box	1
SCREW & WASHERS			
N2	XTS4+12A	Screw	20
N3	XTB35+12A	Screw	22
N4	XTWSG2	Screw with Washer	12
N5	SNEG2400A	Screw with Washer	2
N6	XTB4+12A	Screw	24
N7	XTW3+10Q	Screw	62
N8	XNS9	Nut	1
N9	XYN5+C10	Screw with Washer	6
N10	SNEG740A	Screw	2
N11	XTS3+6B	Screw	2
N12	XYN4+F40	Screw with Washer	1
N13	XTT4+16AFZ	Screw	2
N14	XTB4+14A	Screw	2
N15	XTW3+20Q	Screw	4
N16	XTB3+5C	Screw	15
N17	XTW3+8JFZ	Screw	1
N18	XTT4+10AFZ	Screw	3
N19	XTS35+12A	Screw	19
N20	XTS3+12A	Screw	3
N21	XTS3+10AFVC	Screw	6
N22	XTW3+10JFVC	Screw	5
N23	XTT35+10AFVC	Screw	12
N24	XTT4+16AFVC	Screw	6
N25	XTT4+30A	Screw	2
N26	XTB35+12A	Screw	4
N27	SNEG2270A	Screw with Washer	4
N28	SNEG770A	Washer	2
N29	SNE4021-1	Nut	1
N30	XNS12FZ	Nut	2
N31	XTN2+10FFX	Screw	1
N32	XYN3+C12	Screw with Washer	3
N33	XYN3+F16FZ	Screw with Washer	2
N34	XTB3+8BFVC	Screw	2
N35	XTB35+20A	Screw	14

(SX-GN5)

Ref. No.	Part No.	Description	Per/Set
N36	XYN4+F20FZ	Screw with Washer	10
N37	XTB35+14FVC	Screw	10
N38	XYN3+F20FZ	Screw with Washer	2
N39	XYN5+C25FZ	Screw with Washer	9
N40	SNEG150B	Washer	9
N41	XTB35+25A	Screw	8
N42	XTB3+14AFZ	Screw	4
N43	XTB3+6B	Screw	11
N44	XTT4+14A	Screw	21
N45	XNG5BS	Nut	14
N46	SNEG360A	Bolt	14
N47	XTV3+10G	Screw	1
N48	SNE499-1	Nut	8
N49	XTN26+6B	Screw	2
N50	XTV3+10C	Screw	2
N51	XYN4+F30	Screw with Washer	4
N52	XTT4+30AFVC	Screw	18
N53	XYN4+F10FVC	Screw with Washer	4
N54	XYN5+F30	Screw with Washer	3
N55	XSS3+6FZ	Screw	4
N56	XTS3+14A	Screw	4
N57	XNH10G	Nut	4
N58	XWB10B	Washer	4
N59	XTW3+6J	Screw	12
N60	XTW3+10JFVC	Screw	28
N61	XTB35+14AFZ	Screw	2
N64, 65	XTT4+14AFVC	Screw	7
N66	XTB3+14AFVC	Screw	2

EXPLODED VIEWS OF CABINET

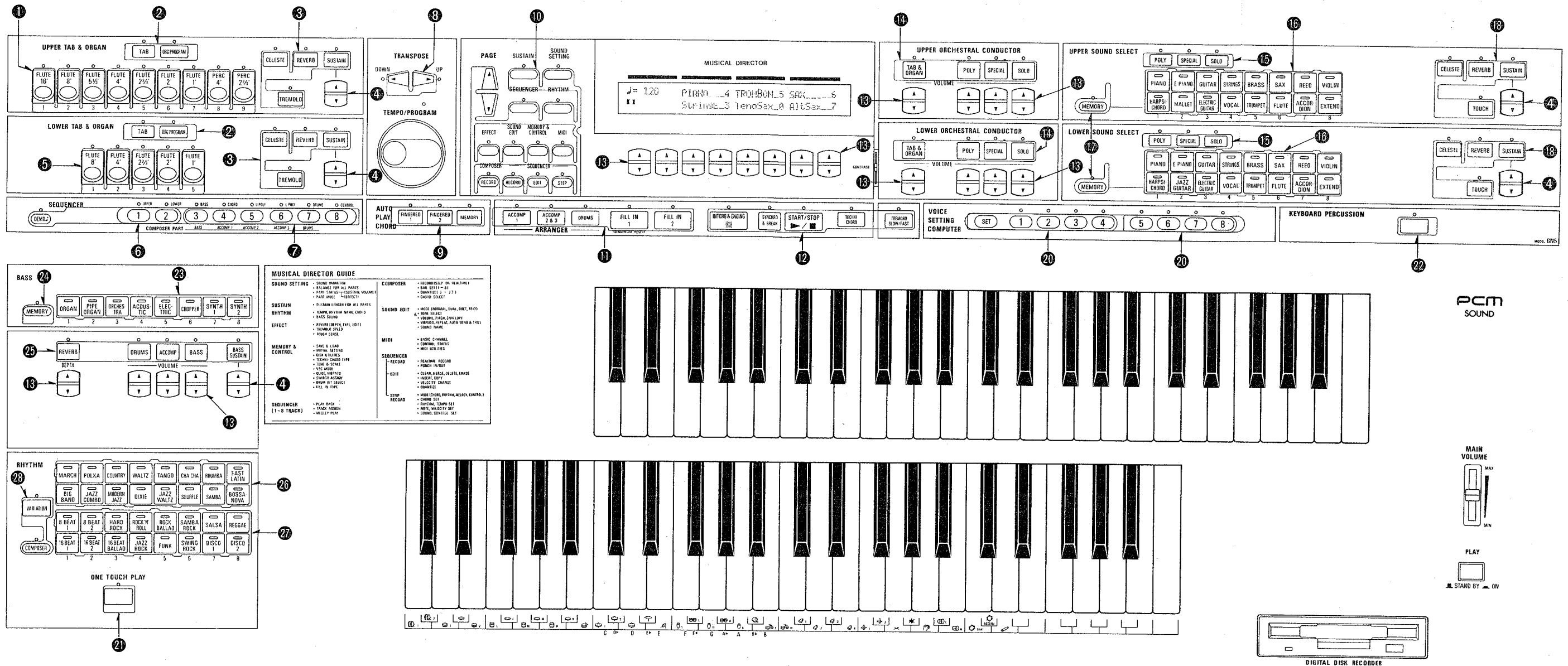
Note: The cabinet assembly parts will not be supplied as repair parts.



15



■ BUTTON



SX-GN5K BUTTON

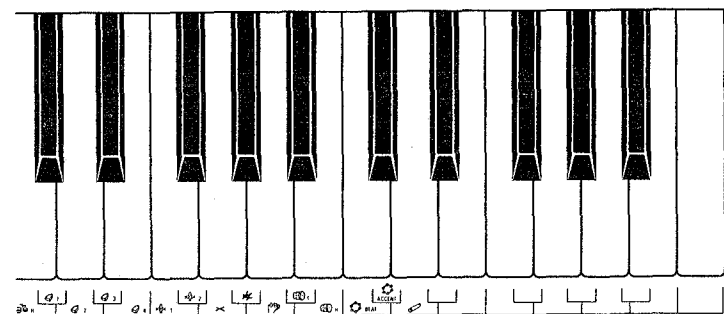
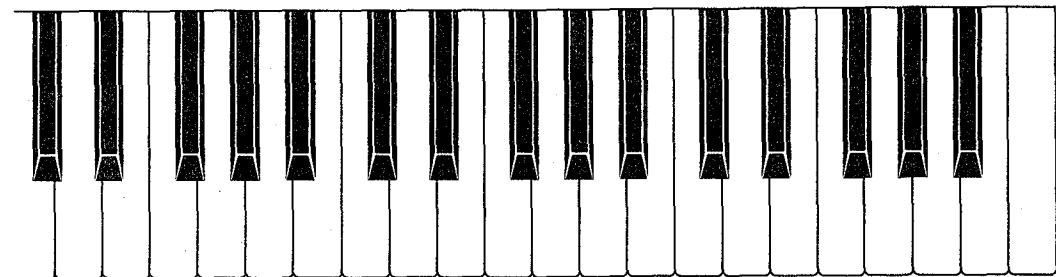
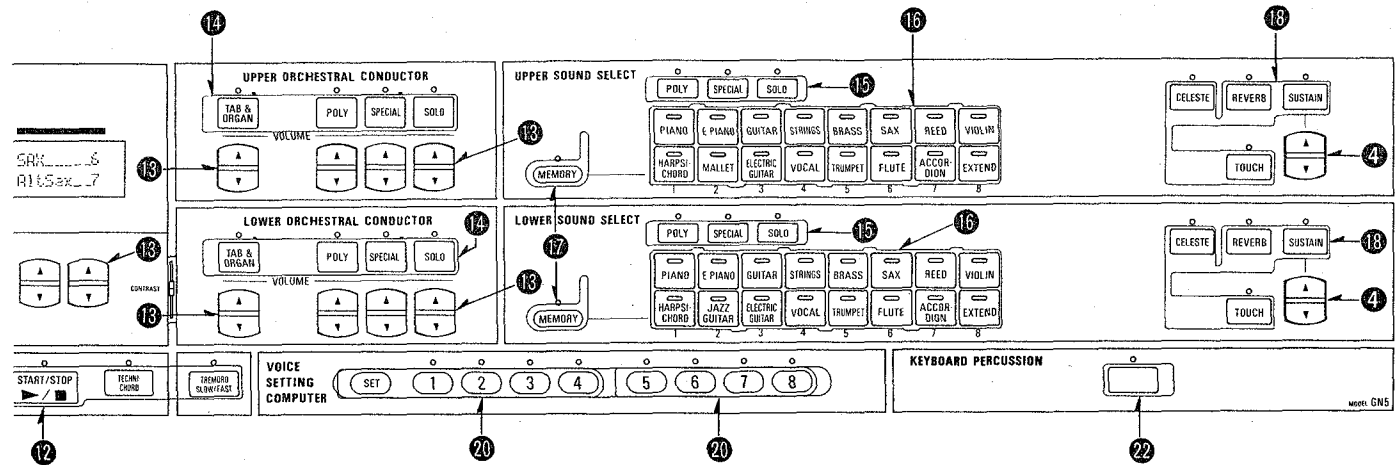
Ref. No.	Part No.	Description	Per/Set
1	QGUG1009AA01	Button	1
2	QGUG1008AA01	Button	2
3	QGUG1011AA02	Button	2
4	QGUG1027AB01	Button	5
5	QGUG1010BA01	Button	1
6	QGUG1020BA01	Button	1
7	QGUG1005AA02	Button	1
8	QGUG1012AA01	Button	1
9	QGUG1014AA01	Button	1
10	QGUG1013AA01	Button	1
11	QGUG1021AA01	Button	1
12	QGUG1022AA01	Button	1
13	QGUG1027AA01	Button	20
14	QGUG1015BA01	Button	2
15	QGUG1018BA01	Button	2
16	QGUG1028CA01	Button	2
17	QGUG1017AA01	Button	2
18	QGUG1019BA01	Button	2

Ref. No.	Part No.	Description	Per/Set
19	QGUG1023AA01	Button	1
20	QGUG1016AA01	Button	1
21	QGUG1001AA	Button	1
22	QGUG1025AA	Button	1
23	QGUG1029BA01	Button	1
24	QGUG1007AA01	Button	1
25	QGUG1006BA01	Button	1
26	QGUG1029AA02	Button	1
27	QGUG1029AA01	Button	1
28	QGUG1003AA01	Button	1

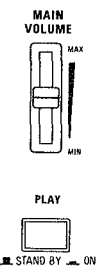
SX-GN5 BUTTON

Ref. No.	Part No.	Description	Per/Set
1	QGUG1009AA01	Button	1
2	QGUG1008AA01	Button	2
3	QGUG1011AA02	Button	2
4	QGUG1027AB01	Button	5
5	QGUG1010BA01	Button	1
6	QGUG1020BA01	Button	1
7	QGUG1005AA02	Button	1
8	QGUG1012AA01	Button	1
9	QGUG1014AA01	Button	1
10	QGUG1013AA01	Button	1
11	QGUG1021AA01	Button	1
12	QGUG1022AA01	Button	1
13	QGUG1027AA01	Button	23
14	QGUG1015BA01	Button	2
15	QGUG1018BA01	Button	2
16	QGUG1028CA01	Button	2
17	QGUG1017AA01	Button	2

Ref. No.	Part No.	Description	Per/Set
18	QGUG1019BA01	Button	2
19	QGUG1023AA01	Button	1
20	QGUG1016AA01	Button	1
21	QGUG1001AA	Button	1
22	QGUG1025AA	Button	1
23	QGUG1029BA01	Button	1
23	QGUG1029BB01	Button	1
24	QGUG1007AA01	Button	1
25	QGUG1006BA01	Button	1
26	QGUG1029AA02	Button	1
26	QGUG1029AB02	Button	1
27	QGUG1029AA01	Button	1
27	QGUG1029AB01	Button	1
28	QGUG1003AA01	Button	1



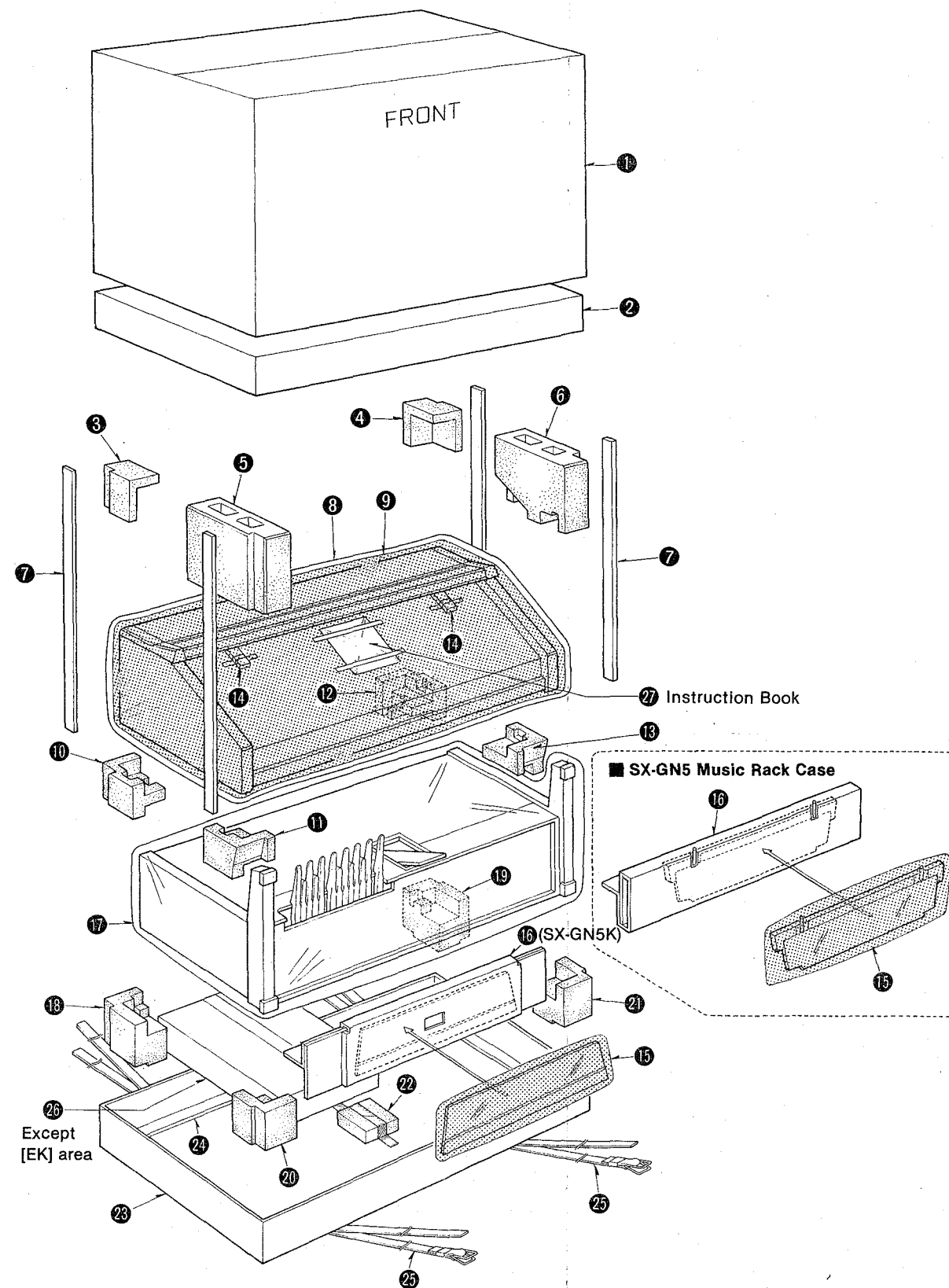
PCM
SOUND



SX-GN5 BUTTON

Ref. No.	Part No.	Description	Per/Set	Ref. No.	Part No.	Description	Per/Set
1	QGUG1009AA01	Button	1	18	QGUG1019BA01	Button	2
2	QGUG1008AA01	Button	2	19	QGUG1023AA01	Button	1
3	QGUG1011AA02	Button	2	20	QGUG1016AA01	Button	1
4	QGUG1027AB01	Button	5	21	QGUG1001AA	Button	1
5	QGUG1010BA01	Button	1	22	QGUG1025AA	Button	1
6	QGUG1020BA01	Button	1	23	QGUG1029BA01	Button	1
7	QGUG1005AA02	Button	1	23	QGUG1029BB01	Button	1
8	QGUG1012AA01	Button	1	24	QGUG1007AA01	Button	1
9	QGUG1014AA01	Button	1	25	QGUG1006BA01	Button	1
10	QGUG1013AA01	Button	1	26	QGUG1029AA02	Button	1
11	QGUG1021AA01	Button	1	26	QGUG1029AB02	Button	1
12	QGUG1022AA01	Button	1	27	QGUG1029AA01	Button	1
13	QGUG1027AA01	Button	23	27	QGUG1029AB01	Button	1
14	QGUG1015BA01	Button	2	28	QGUG1003AA01	Button	1
15	QGUG1018BA01	Button	2				
16	QGUG1028CA01	Button	2				
16	QGUG1028CB01	Button	2				
17	QGUG1017AA01	Button	2				

PACKING



SX-GN5K PACKING PARTS

Ref. No.	Part No.	Description	Per/Set
○ 1	QPGG0008AA	Carton Box	1
○ 2	QPGG0007AA	Top Case	1
○ 3	QPNG0020AA	Pad	1
○ 4	QPNG0021AA	Pad	1
○ 5	QPNG0018AA	Pad	1
○ 6	QPNG0019AA	Pad	1
○ 7	QPQG002AA	Prop	4
8	SPHG220A	Polyethylene Bag	1
9	SPHG620A	Protection Sheet	1
○ 10	QPNG0016AA	Pad	1
○ 11	QPNG0014AA	Pad	1
○ 12	QPNG0017AA	Pad	1
○ 13	QPNG0015AA	Pad	1
14	SPNG5161A	Spacer	2
15	SPHG2020A	Protection Sheet	1
○ 16	QPGG0005AA	Music Rack Case	1
17	SPHG770A	Polyethylene Bag	1
○ 18	QPNG0024AA	Pad	1
○ 19	QPNG0025AA	Pad	1
○ 20	QPNG0022AA	Pad	1
○ 21	QPNG0023AA	Pad	1
22	SPNG5749A	Pad	1
○ 23	QPGG0006AA	Bottom Case	1
○ 24	QPQG001AA	Frame	1
25	SPSG40A	Band	4
26	SPEG1167A	Packing Case, Bench (Except [EK])	1

INSTRUCTION BOOK

○ 27	N	QQFGGN5KAA	Instruction Book, [N] only	1
○ 27	EN	QQFGGN5KBA	Instruction Book, [EN] only	1
○ 27	EK EP X XL XR XS XD	QQFGGN5KCA	Instruction Book, [EK], [EP], [X], [XL], [XR], [XS], [XD] only	1
○ 27	EZ EW EI EB EF EH	QQFGGN5KDA	Instruction Book, [EZ], [EW], [EI], [EB], [EF], [EH] only	1

SX-GN5 PACKING PARTS

Ref. No.	Part No.	Description	Per/Set
○ 1	QPGG0019AA	Carton Box	1
○ 2	QPGG0007AA	Top Case	1
○ 3	QPNG0020AA	Pad	1
○ 4	QPNG0021AA	Pad	1
○ 5	QPNG0037AA	Pad	1
○ 6	QPNG0038AA	Pad	1
○ 7	QPQG002AA	Prop	4
8	SPHG220A	Polyethylene Bag	1
9	SPHG620A	Protection Sheet	1
○ 10	QPNG0016AA	Pad	1
○ 11	QPNG0035AA	Pad	1
○ 12	QPNG0017AA	Pad	1
○ 13	QPNG0036AA	Pad	1
14	SPNG5161A	Spacer	2
15	SPHG2020A	Protection Sheet	1
○ 16	SPNG2024B	Music Rack Case	1
17	SPHG770A	Polyethylene Bag	1
○ 18	QPNG0024AA	Pad	1
○ 19	QPNG0025AA	Pad	1
○ 20	QPNG0022AA	Pad	1
○ 21	QPNG0023AA	Pad	1
22	SPNG5749A	Pad	1
○ 23	QPGG0006AA	Bottom Case	1
○ 24	QPQG001AA	Frame	1
25	SPSG40A	Band	4
26	SPEG1168B	Packing Case, Bench (Except [EK])	1

INSTRUCTION BOOK

○ 27	M	QQFGGN5EA	Instruction Book, [M] only	1
○ 27	EN	QQFGGN5KBA	Instruction Book, [EN] only	1
○ 27	EK EP X XL XR XS XD XM MC	QQFGGN5KCA	Instruction Book, [EK], [EP], [X], [XL], [XR], [XS], [XD], [XM], [MC] only	1
○ 27	EZ EW EI EB EF EH	QQFGGN5KDA	Instruction Book, [EZ], [EW], [EI], [EB], [EF], [EH] only	1